Common Market for Eastern and Southern Africa

EDICT OF GOVERNMENT

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COMESA 226-2 (2006) (English/French): Plugs, socket-outlets and couplers for industrial purposes - Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories

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COMESA HARMONISED STANDARD

COMESA/DHS 226-2: 2005

Plugs, socket-outlets and couplers for industrial purposes - Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories

REFERENCE: DHS 226-2: 2005

Foreword

The Common Market for Eastern and Southern Africa (COMESA) was established in 1994 as a regional economic grouping consisting of 20 member states after signing the co-operation Treaty. In Chapter 15 of the COMESA Treaty, Member States agreed to co-operate on matters of standardisation and Quality assurance with the aim of facilitating the faster movement of goods and services within the region so as to enhance expansion of intra-COMESA trade and industrial expansion.

Co-operation in standardisation is expected to result into having uniformly harmonised standards. Harmonisation of standards within the region is expected to reduce Technical Barriers to Trade that are normally encountered when goods and services are exchanged between COMESA Member States due to differences in technical requirements. Harmonized COMESA Standards are also expected to result into benefits such as greater industrial productivity and competitiveness, increased agricultural production and food security, a more rational exploitation of natural resources among others.

COMESA Standards are developed by the COMESA experts on standards representing the National Standards Bodies and other stakeholders within the region in accordance with international procedures and practices. Standards are approved by circulating Final Draft Harmonized Standards (FDHS) to all member states for a one Month vote. The assumption is that all contentious issues would have been resolved during the previous stages or that an international or regional standard being adopted has been subjected through a development process consistent with accepted international practice.

COMESA Standards are subject to review, to keep pace with technological advances. Users of the COMESA Harmonized Standards are therefore expected to ensure that they always have the latest version of the standards they are implementing.

This COMESA standard is technically identical to the International Standard *IEC 60309-2:2005.*

NORME INTERNATIONALE

INTERNATIONAL STANDARD

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60309-2

Edition 4.1

2005-12

Edition 4:1999 consolidée par l'amendement 1:2005
Edition 4:1999 consolidated with amendment 1:2005

Prises de courant pour usages industriels –

Partie 2:
Règles d'interchangeabilité dimensionnelle pour les appareils à broches et alvéoles

Plugs, socket-outlets and couplers for industrial purposes –

Part 2:
Dimensional interchangeability requirements for pin and contact-tube accessories

Numéro de référence
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CEI/IEC 60309-2:1999+A1:2005

Numérotation des publications

Depuis le 1er janvier 1997, les publications de la CEI sont numérotées à partir de 60000. Ainsi, la CEI 34-1 devient la CEI 60034-1.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PLUGS, SOCKET-OUTLETS AND COUPLERS FOR INDUSTRIAL PURPOSES –

Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories

FOREWORD

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International Standard IEC 60309-2 has been prepared by subcommittee 23H: Industrial plugs and socket-outlets, of IEC technical committee 23: Electrical accessories.

This part 2 shall be used in conjunction with part 1.

This consolidated version of IEC 60309-2 is based on the fourth (1999) [documents 23H/89/FDIS and 23H/92/RVD] and its amendment 1 (2005) [documents 23H/175/FDIS and 23H/183/RVD].

It bears the edition number 4.1.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

This standard is divided into several parts:

Part 1: General requirements, comprising clauses of a general character.

Subsequent parts: Particular requirements dealing with particular types. The clauses of these particular requirements supplement or modify the corresponding clauses in Part 1. Where the text of subsequent parts indicates an "addition" to or a "replacement" of the relevant requirement, test specification or explanation of Part 1, these changes are made to the relevant text of Part 1, which then becomes part of the standard. Where no change is necessary, the words "This clause of Part 1 is applicable" are used.

PLUGS, SOCKET-OUTLETS AND COUPLERS FOR INDUSTRIAL PURPOSES –

Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories

1 Scope

Replacement:

This standard applies to plugs and socket-outlets, cable couplers and appliance couplers with a rated operating voltage not exceeding 690 V, 500 Hz and a rated current not exceeding 125 A, primarily intended for industrial use, either indoors or outdoors.

NOTE All references for accessories with a rated current of more than 125 A in part 1 are not applicable to this part 2.

This standard applies to plugs and socket-outlets, cable couplers and appliance couplers with pins and contact tubes of standardized configurations.

This standard applies to plugs and socket-outlets, cable couplers and appliance couplers, hereinafter referred to as accessories, for use when the ambient temperature is normally within the range –25 °C to 40 °C.

The use of these accessories on building sites and for agricultural, commercial and domestic applications is not precluded.

This standard applies to accessories with screwless type terminals or insulation piercing terminals, with a rated current up to and including 16 A for Series I and 20 A for Series II .

NOTE In the following countries, this standard applies to accessories with screwless type terminals or insulation piercing terminals, with a rated current up to and including 32 A for Series I and 30 A for Series II : DE, IT.

Socket-outlets or appliance inlets incorporated in or fixed to electrical equipment are within the scope of this standard. This standard also applies to accessories intended to be used in extra-low voltage installations.

NOTE This standard does not apply to accessories primarily intended for domestic and similar general purposes.

In locations where special conditions prevail, for example on board ship or where explosions are liable to occur, additional requirements may be necessary.

2 Definitions

This clause of part 1 is applicable except as follows:

Additional subclause:

2.101
phase inverter
a plug or an appliance inlet with operating means to interchange the position of two phase pins without disconnecting them from the conductors

3 Normative references

This clause of part 1 is applicable except as follows:

Addition:

IEC 60617-2:1996, *Graphical symbols for diagrams – Part 2: Symbol elements, qualifying symbols and other symbols having general application*

4 General

This clause of part 1 is applicable except as follows:

4.1 The last paragraph of this subclause of Part 1 is not applicable.

See Amendment 1 of IEC 60309-1.

Additional subclause:

4.101 If gauges are used, they shall be of hardened steel, all corners shall be slightly rounded-off with a maximum radius of 0,1 mm, and the surface finish for all measurement surfaces shall be $\overset{N8}{\sqrt{}}$ min., if not otherwise specified.

In this standard:

2P + ⏚ covers both 2P + ⏚ and 1P + N + ⏚ and

3P + ⏚ covers both 3P + ⏚ and 2P + N + ⏚

unless specifically excluded (see Table 104).

5 Standard ratings

This clause of part 1 is applicable except as follows:

5.2 *Replacement:*

Standard rated currents are given in Table 101.

Table 101

Series I A	**Series II** A
16 32 63 125	20 30 60 100

5.101 The standard IP ratings according to IEC 60529 are:

– IP44,
– IP67,
– IP66/IP67.

6 Classification

This clause of part 1 is applicable except as follows:

6.1.2 This clause of Part 1 is applicable.

7 Marking

This clause of part 1 is applicable except as follows:

7.1 *Modification:*

Delete the note

Addition:

The symbol indicating the position of the earthing contact or of the minor key or keyway shall be placed before or above the figure for the rated operating voltage, and separated from it by a line.

These markings shall be placed after that for rated current, separated from it by a dash if an oblique line separates the symbol indicating the position of the earthing contact or of the minor key or keyway from the figure for the rated operating voltage.

If a symbol for nature of supply is used, it shall be placed next to or below the marking for rated operating voltage.

For three-phase accessories it is not necessary to mark the voltage phase to neutral, if any.

The marking for rated current(s), position of the earthing contact or the minor key, keyway, rated operating voltage(s) and nature of supply accordingly may be as follows:

For series I:

16 A - 9 h/400 V~, or 16 - 9 h/400~, or 16 - $\frac{9\text{ h}}{400\text{ ~}}$, or

16 A - 9 h/380-415 V~, or 16 - 9 h/380-415~, or 16 - $\frac{9\text{ h}}{380\text{ - }415\text{ ~}}$

32 A - 6 h/230/400 V~, or 32 - 6 h/230/400~, or 32 - $\frac{6\text{ h}}{230\text{ / }400\text{ ~}}$, or

32 A - $\frac{6\text{ h / }220\text{ / }380\text{ V ~}}{240\text{ / }415\text{ V ~}}$, or 32 - $\frac{6\text{ h / }220\text{ / }380\text{ ~}}{240\text{ / }415\text{ V ~}}$, or 32 - $\frac{6\text{ h}}{\frac{220\text{ / }380\text{ ~}}{240\text{ / }415\text{ ~}}}$

For series II

20 A - 7 h/480 V a.c. or 20 A - 7 h/480~, or 20 A - $\frac{7\text{ h}}{480\ \sim}$

30 A - 7 h/480 V, 3 Phase, or 30 A - 7 h/480, 3Φ, or 30 A - $\frac{7\text{ h}}{480\text{ V, }3\Phi}$

60 A - 7 h/277/480 V, 3 Phase Y, or 60 A - 7 h/277/480, 3ΦY, or 60 A - $\frac{7\text{ h}}{277\,/\,480\text{ V, }3\Phi\,\text{Y}}$

It is allowed to put the symbols for a.c. (~) and d.c. (⎓ or ⎯) after the values (IEC 60617-2).

The drawings of standard sheets 2-I, 2-II, 2-III and 2-IV show accessories with the symbol 6 h and those of standard sheets 2-VIII and 2-IX accessories with the symbol 12 h.

For accessories having rated operating voltages exceeding 50 V, the symbol indicating the position of the earthing contact shall be a numeral followed by the letter h.

The numeral is derived from the position of the earth contact tube, when compared with the face of a clock, the socket-outlet or connector being viewed from the front with the keyway at the sixth hour.

For accessories having rated operating voltages not exceeding 50 V, the symbol indicating the position of the minor key shall be a numeral followed by the letter h.

The numeral is derived from the position of the minor key, when compared with the face of a clock, the socket-outlet or connector being viewed from the front with the major key at the sixth hour.

For plugs and appliance inlets, the symbol indicating the position of the earthing contact or the minor keyway shall be the same as that for the corresponding socket-outlet or connector.

Contact tubes of socket-outlets and connectors shall be positioned in the clockwise order when viewed from the front as shown in the standard sheets (see also 7.5).

Pins of plugs and appliance inlets shall be positioned in the opposite order viewed from the front.

7.2 This clause of Part 1 is applicable.

7.4 *Replacement*

For plugs and connectors, the marking specified in 7.1 shall be easily discernible when the accessory is wired ready for use.

The marking for insulation voltage shall be on the main part; it shall not be visible when the accessory is mounted and wired as in normal use.

NOTE 1 The term "ready for use" does not imply that the plug or connector is engaged with its complementary accessory.

NOTE 2 The term "main part" of a plug or a connector means the part carrying the contacts.

Compliance is checked by inspection.

7.5 *Replacement*

For rewirable accessories, the contacts shall be indicated by the following symbols.

– for accessories with three contacts (phase + neutral + earth, or, phase + phase + earth):

  L / +, unmarked, ⏚ or ⏚

  except for Series II clock position 4 h and 5 h which are marked:

  N, unmarked, ⏚ or ⏚

– for accessories with four contacts (three phase + earth):

  L1, L2, L3, ⏚ or ⏚ or alternatively 1, 2, 3, ⏚ or ⏚

  except for Series II clock position 12 h (phase + centre tap + phase + earth) which is marked:

  L1, N, L2, ⏚ or ⏚

– for accessories with five contacts (three phase + neutral + earth):

  L1, L2, L3, N, ⏚ or ⏚ or alternatively 1, 2, 3, N ⏚ or ⏚

– for a period of time the marking R1, S2, T3 may be used instead of L1, L2, L3.

– for accessories having a rated operating voltage not exceeding 50 V, 8 h clock position for portable electric incubator : +12, +24.

These symbols shall be placed close to the relevant terminals; they shall not be placed on screws, removable washers or other removable parts.

For phase inverters these symbols shall conform in one position with the requirements of 7.1. In the other position of the inverting means, the phase marking need not conform.

NOTE The terminals for pilot conductors are not required to be indicated.

The figures used with the letters may be written as an index. It is recommended that where practicable the symbol ⏚ be used.

Compliance is checked by inspection.

7.7 *Modification:*

This subclause of part 1 is applicable except for the following addition:

Add:

The 2P + N + earth, 12 h, Series II accessories shall use the indicating colour orange.

8 Dimensions

This clause of part 1 is applicable except as follows:

8.1 *Replacement:*

Accessories shall comply with the relevant standard sheets as specified below:

– accessories having rated operating voltages exceeding 50 V:
  - 16/20 A and 32/30 A: ..... Sheets 2-I and 2-II;
  - 63/60 A and 125/100 A, without pilot contact:..... Sheets 2-III and 2-IV;
  - 63/60 A and 125/100 A, with pilot contact: ..... Sheets 2-IIIa and 2-IVa;
  - mechanical interlock for 16 A to 125 A accessories ..... Sheet 2-V

– accessories having rated operating voltage not exceeding 50 V:

16/20 A and 32/30 A: ..... Sheets 2-VIII and 2-IX.

Deviations from the dimensions specified in the standard sheets may be made, but only if they provide a technical advantage and do not adversely affect the purpose and safety of the accessories complying with the standard sheets, especially with regard to interchangeability and non-interchangeability.

Compliance is checked by means of gauges or by measurement for those dimensions not covered by gauges,

– *for accessories having rated operating voltages exceeding 50 V according to:*
  - *Figures 101 and 102 for socket-outlets and connectors;*
  - *Figures 107 and 108 for plugs and appliance inlets;*

– *for accessories having rated operating voltages not exceeding 50 V according to:*
  - *Figures 110 and 112 for 16/20 A and 32/30 A accessories.*

The gauges shall be moved axially to the centre line of the accessory with a force as shown in the Table 102, applied for 1 min.

Table 102

Rated operating voltage V	**Rated current** A		**Force (max.) for "GO" gauge** N	**Force (max.) for "NOT GO" gauge** $N\ (^{0}_{-1})$
	Series I	**Series II**		
Not exceeding 50 V	16 32	20 30	150 150	30 30
Exceeding 50 V	16 32 63 125	20 30 60 100	60 90 165 240	20 30 55 80

Before the test, the test specimen of insulating material shall be stored at a temperature of (20 ± 5) °C and a relative humidity between 45 % and 75 % for four weeks.

For accessories having rated operating voltages not exceeding 50 V, the position of the minor key or keyway shall be as shown in Tables 103-1 or 103-2

For accessories having rated operating voltages exceeding 50 V, the position of the earthing contact shall be as shown in Table 104.

Compliance is checked by inspection.

Table 103-1 – General purpose accessories with rated voltage not exceeding 50 V

Rated operating voltage V	Frequency Hz	Minor key or keyway position*
20 to 25	50 and 60	No minor key or keyway
40 to 50	50 and 60	12
20 to 25 and 40 to 50	100 up to and including 200	4
	300	2
	400	3
	Over 400 up to and including 500	11
	Direct current	10
* The minor key or keyway position is indicated by the relevant number (see 7.1).		

Table 103-2 – Special application accessories with rated voltage not exceeding 50 V

Rated operating voltage	Rated current	Numbers of poles	Other characteristics and application	Minor key or keyway position *
25 V	32 A	3	Portable electric incubators – use at 12 V d.c. or 24 V d.c. on ambulances or helicopters	8
* The minor key or keyway is indicated by the relevant number.				

Positions 1 and 9 are reserved for future standardisation. For constructional reasons, positions 5, 6 and 7 cannot be used.

Table 104

Number of contacts	Type	Frequency Hz	Rated operating voltage V	Accessories earthing-contact position[1)] 16/20 A 32/30 A	 63/60 A 125/100 A
3 contacts	1P+N+⏚ Series II	50 and 60	100 to 130	4	4
		60	277	5	5
	2P+⏚ Series I and II	50 and 60	100 to 130	4	4
			200 to 250	6	6
		50 and 60	380 to 415	9	9
			480 to 500	7	7
			Supply from an isolating transformer	12	12
		100 up to and including 300	Over 50	–	–
		Over 300 up to and including 500	Over 50	2	–
		Direct current	Over 50 up to and including 250	3	3
			Over 250	8	8
4 contacts	2P+N+⏚ Series II	50 and 60	125/250 single-phase	12	12
	3P+⏚ Series I and II	50 and 60	100 to 130	4	4
			200 to 250	9	9
			380 to 415	6	6
		60	440 to 460[2)]	11	11
		50 and 60	480 to 500	7	7
			600 to 690	5	5
		50 60	380 440[3)]	3	–
		100 up to and including 300	Over 50	10	–
		Over 300 up to and including 500	Over 50	2	–
5 contacts	3P+N+⏚ Series I and II	50 and 60	57/100 to 75/130	4	4
			120/208 to 144/250	9	9
			200/346 to 240/415	6	6
			277/480 to 288/500	7	7
			347/600 to 400/690	5	5
		60	250/440 to 265/460[2)]	11	11
		50 60	220/380 250/440[3)]	3	–
		100 up to and including 300	Over 50	–	–
		Over 300 up to and including 500	Over 50	2	–
All types		All rated operating voltage and/or frequencies not covered by other configurations.		1	1

1) The earthing-contact position is indicated by the relevant numeral (see 7.1).

2) Mainly for marine installations.

3) Only for refrigerated containers (standardized ISO).

NOTE The positions shown by a dash (–) are not standardized.

8.2 *Replacement:*

For accessories having rated operating voltages exceeding 50 V, it shall not be possible to engage plugs or connectors with socket-outlets or appliance inlets having different ratings, or having different contact combinations.

In addition, for all accessories the design shall be such that improper connections shall not be possible between:

– the earth and/or pilot plug-contact and a live socket-contact, or a live plug-contact and the earth and/or pilot socket-contact;
– the phase plug-contacts and the neutral socket-contact, if any;
– the neutral plug-contact and a phase socket-contact.

Compliance is checked by inspection, with the following exception:

For the two last indents, compliance is not required between three contacts accessories Series I and II, 4 h, since these have reciprocal contact positions.

NOTE These conflicting versions have both been in use for many years and resolution of this problem has been found to be impractical.

It shall not be possible to engage plugs with socket-outlets or connectors having different earthing-contact positions or minor key positions.

Compliance is checked by inspection and tests using the methods indicated below. These tests are made after storage of test specimens of insulating material at a temperature of (20 ± 5) °C and with relative humidity between 45 % and 75 % for four weeks.

For accessories having thermoplastic housing, this test is made at a temperature of (35 ± 2) °C, both the accessories and the gauges being at this temperature.

a) Checking plugs and appliance inlets

For plugs and appliance inlets with rated operating voltage exceeding 50 V, gauges according to Figure 109 are used.

For plugs and appliance inlets with rated operating voltage not exceeding 50 V, gauges according to Figure 113 are used.

First test (key)

The socket-gauge shown in Figure 109 is placed before the plug in such a way that during the test the key shall hit the lower part of the shroud of the gauge approximately in the middle.

The force F is slowly increased in such a way that the total force given in Table 105 is exerted after 15 s. After that the full force is applied for 1 min.

The forces used are given in Table 105.

Table 105

Rated current Series I/II	A	16/20	32/30	63/60	125/100
Force *F*	N	175	210	385	560

When the force is applied the gauge is not permitted to move more than 4 mm in relation to the shroud of the plug or appliance inlet.

After the test, the plug and appliance inlet shall not be damaged in such a way that impairs further use of the accessory.

These forces are equal to 1,4 times the corresponding withdrawal forces.

Second test (earth-pin)

The force F shall be applied to the earth-pin in the same manner and for the same duration as in the previous test.

After that test, the plug and appliance inlet shall comply with the relevant standard sheet.

b) Checking socket-outlets and connectors

For socket-outlets and connectors having rated operating voltages exceeding 50 V, gauges according to Figure 104 are used.

For socket-outlets and connectors having rated operating voltages not exceeding 50 V, gauges according to Figure 111 are used.

First test (shroud)

The first test is carried out on all different clock positions, except for the one corresponding to the socket-outlet or connector to be used.

The test specimen shall be fixed and supported in such a way that the rigidity of the socket-outlet or connector is not influenced.

Arrangement for test shall be according to Figure 103.

The gauge shown in Figure 104 shall hit two opposite points of the accessory at the same time. The axis of the gauge and of the accessory shall be approximately parallel and the chamfer shall be equally divided in both sides.

The force F is slowly increased in such a way that the total force given in Table 105 is exerted after 15 s. After that the full force is applied for 1 min.

When the force is applied, the gauge is not permitted to move more than 4 mm in relation to the shroud of the socket-outlet or connector.

After the test, the socket-outlet of the connector shall not be damaged to the extent of impairing the further use of the accessory.

Second test (holes)

For the second test, the gauge shown in Figure 105 is inserted in each phase hole.

The gauge shall not enter the phase hole by a greater distance than that shown in Table 106 measured from the front of the internal part (see Figure 106).

The same forces and duration and the same method of application are used as for the previous test.

Table 106

Rated current Series I/II	A	16/20	32/30	63/60	125/100
Distance *X*	mm	11	12,5	15	20

8.3 *Addition:*

Compliance is checked by manual test and, for accessories with enclosures of resilient or thermoplastic material, by means of the gauge shown in Figure 114.

The gauge is applied with a force of 200 N for 1 min. For accessories with enclosures of thermoplastic material the gauge is applied at a temperature of (35 ± 2) °C, both the accessories and the gauge being at this temperature.

NOTE For accessories of rigid material, such as metal, thermosetting resins, ceramic material and the like, conformity to the relevant standard sheets ensures compliance with this requirement.

9 Protection against electric shock

This clause of part 1 is applicable except as follows:

9.1 *Addition:*

Conformity with the relevant standard sheets ensures compliance with the requirement as far as inaccessibility of contacts during insertion of a plug or connector into the complementary accessories is concerned.

9.2 *Addition:*

Conformity with the relevant standard sheets ensures compliance with these requirements.

10 Provision for earthing

This clause of part 1 is applicable.

11 Terminals and terminations

This clause of Part 1 is applicable except as follows:

11.2.1 *Addition:*

Screw type terminals may be identified by the terminal sizes given in the Table 107.

NOTE For screw type terminals not identified by terminal sizes given in the Table 107, Part 1 is applicable.

Screw type terminals identified by terminal sizes shall comply with standard sheets as specified in 11.101 of this standard and are not subject to test as in 11.5 of Part 1.

Add the following new subclause:

11.101 Screw type terminals identified by terminal sizes

11.101.1 Terminals shall comply with the standard sheets as specified below, except those for standard sheets 2-X, 2-XI and 2-XII. For these standard sheets, the length of thread in the fixed part or nut and the length of thread on the screw or stud may be reduced, if the mechanical strength of the terminal is adequate and at least two full threads of every clamping screw are in engagement when a conductor of the most unfavourable cross-sectional area is clamped.

Standard sheet 2-X applies to pillar terminals.

Standard sheet 2-XI applies to screw terminals and stud terminals.

Standard sheet 2-XII applies to saddle terminals.

Standard sheet 2-XIII applies to lug terminals.

Mantle terminals shall comply with standard sheet 2-X with regard to the dimensions *D* and *e*. Terminals which are essentially of the pillar type, but with the part with the hole for the conductor slotted to enable the conductor to be moved laterally into position, shall comply with standard sheet 2-X. Anyhow, the maximum gap between the conductor restraining parts on the side where the slot is located shall comply with standard sheet 2-XI.

If the required length of thread in a terminal screw hole is obtained by plunging, the edge of the extrusion shall be reasonably smooth and the length of the thread shall exceed the specified minimum value by at least 0,5 mm.

Compliance is checked by inspection, by measurement and, for terminals with a reduced length of thread, by test of 11.101.2.

The maximum gap between the conductor restraining parts is checked by means of a steel gauge pin with a diameter equal to e ± 0,05 mm.

For terminals without pressure plate(s) or the like, complying with standard sheet 2-X, the clamping screw is screwed fully home without a conductor in position. It shall not then be possible to insert the gauge pin between the threaded part of the screw and the wall of the conductor space.

For terminals complying with standard sheet 2-XI, and for terminals with a pressure plate or the like complying with standard sheet 2-X, where it is not appropriate to insert the gauge pin in all positions, a conductor is clamped in the terminal.

For terminals complying with standard sheet 2-X, the conductor is in the form of a rod with a diameter equal to that corresponding to the middle cross-sectional area of the range specified for the particular terminal, and having a flat end perpendicular to the axis.

For terminals complying with standard sheet 2-XI, the conductor is solid and has a diameter D as specified in this standard sheet.

With this conductor in position, it shall not be possible to insert the gauge pin, applied in a direction parallel to the axis of the conductor, into any gap through which a wire of a stranded conductor might escape.

The minimum distance between the clamping screw and the end of the conductor, when fully inserted, is specified in standard sheet 2-X. It is checked by means of the rod conductor specified above, which shall pass into the conductor space for a distance, beyond the threaded hole, at least equal to the minimum distance specified.

For terminals with pressure plate(s) complying with standard sheet 2-X, the gauge pin is applied to the gap between the pressure plate and the wall of the conductor space.

The following negative deviations from the specified values are allowed for the minimum nominal thread diameter of the screw:

– 0,15 mm for screws with a nominal diameter not exceeding 5 mm;

– 0,22 mm for screws with a nominal diameter over 5 mm but not exceeding 10 mm;

– 0,27 mm for screws with a nominal diameter of over 10 mm.

This subclause does not exclude terminals of types other than those shown in the standard sheets. Such terminals shall, however, comply with the other requirements of this clause as far as is reasonable, and it may be necessary to formulate additional requirements.

If the thread in the fixed part or nut is recessed, the total length of the shank of headed screws shall be increased accordingly.

If one or more of the dimensions are larger than the minimum values specified in the standard sheets, the other dimensions need not be correspondingly increased, but departures from the specified values shall not impair the function of the terminal.

11.101.2 *Terminals complying with standard sheet 2-X, but with a reduced length of thread, are fitted with a conductor of the smallest cross-sectional area specified in Table 107, tightly clamped, or a conductor of the largest cross-sectional area specified in this table, lightly clamped, whichever is the most unfavourable*.

Table 107 – Size of connectable conductors

Rating of the accessory			**Internal connection**[1]						**External earthing connection if any**		
Voltage V	**Current** A		**Flexible cables for plugs and connectors**[2]			**Solid or stranded cables for socket-outlets**[2] [6]					
			Solid or stranded cables for appliance inlets[2]								
	Series I	**Series II**	**Series I** mm²	**Series II** AWG/ MCM[3]	**Terminal size**	**Series I** mm²	**Series II** AWG/ MCM[3]	**Terminal size**	**Series I** mm²	**Series II** AWG/ MCM[3]	**Terminal size**
Not exceeding 50	16	20	4 to 10	12 to 8	6	4 to 10	12 to 8	5			
	32	30	4 to 10	12 to 8	6	4 to 10	12 to 8	5			
Exceeding 50	16	20	1 to 2,5	16 to 12	2	1,5 to 4	16 to 12	3[4]	6	10	4
	32	30	2,5 to 6	14 to 10	5	2,5 to 10	14 to 8	5	10	8	5
	63	60	6 to 16	10 to 6	7	6 to 25	10 to 4	7	25	4	7
	125	100	16 to 50	6 to 2	9[5]	25 to 70	4 to 0	9[5]	25	4	7

1) Terminals for pilot conductors, if any, shall allow the connection of conductors having the same nominal cross-sectional areas as the terminals of 16 A accessories having rated operating voltages exceeding 50 V.

2) Classification of conductors: according to IEC 60228, Clause 2, solid (Class 1); stranded (Class 2); flexible (Class 5).

3) The nominal cross-sectional areas of conductors are given in square millimetres (mm²). AWG/MCM values are considered as equivalent to mm² for the purpose of this standard.

AWG: American Wire Gauge is a system of identifying wires in which the diameters are in geometric progression between size 36 and size 0000.

MCM: Mille Circular Mils denotes circle surface unit area. 1 MCM = 0,5067 mm².

4) For pillar terminals, size 2.

5) Compliance with terminal size 9 is provisionally not required.

6) For socket-outlets declared for flexible conductors only, these values apply.

Terminals complying with standard sheets 2-XI or 2-XII, but with a reduced length of thread, are fitted with a conductor of the largest cross-sectional area specified in Table 107, lightly clamped.

At least two threads shall be in full engagement.

The terminals are then fitted with conductors of the smallest and largest cross-sectional areas specified in Table 107, rigid (solid or stranded) for socket-outlets and appliance inlets, and flexible for plugs and connectors, and the terminal screws are tightened, the maximum torque applied being equal to two-thirds of the torque specified in Table 15 of IEC 60309-1. Each conductor is subjected to a pull force N of the value, in Newton, shown in Table 108; the pull is applied without jerks, for 1 min, in the direction of the axis of the conductor space.

Table 108

Terminal size	2	3	4	5	6	7	8	9	10
Pulling force N	50	50	60	80	90	100	120	150	200

During the test, the conductor shall not move noticeably in the terminal.

NOTE For terminals with sizes from 8 to 10, the value of the pulling force N is provisional.

12 Interlocks and retaining devices

This clause of part 1 is applicable except as follows:

12.1 *Addition:*

If an accessory having a rated operating voltage exceeding 50 V is provided with a mechanical interlock, this shall comply with standard sheet 2-V.

It shall not be possible to operate the mechanical switching device of a mechanically interlocked switched socket-outlet or switched connector, except after the insertion of an appropriate plug.

NOTE Tools are not considered as appropriate plugs.

It is accepted that tools may be used to override interlock for circuit testing purposes.

12.3 *Addition:*

Accessories shall be provided with a retaining device as indicated in Table 109.

13 Resistance to ageing of rubber and thermoplastic material

This clause of part 1 is applicable.

Table 109

Rated current of the accessory A	Classification according to degree of protection against moisture	Socket-outlets and connectors			Plugs and appliance inlets		
		Retaining means	Standard sheet		Retaining means	Standard sheet	
			Rated operating voltage exceeding 50 V	Rated operating voltage not exceeding 50 V		Rated operating voltage exceeding 50 V	Rated operating voltage not exceeding 50 V
16/20 and 32/30	IP44	Lid	2-I (continuation 1)	2-VIII (continuation 1)	Lug or cavity	2-II (continuation 1)	2-IX (continuation 1)
	IP66/IP67 and IP67	Two-ramp system	2-I (continuation 2)	2-VIII (continuation 2)	Lug or cavity and bayonet ring	2-II (continuation 2)	2-IX (continuation 2)
63/60	IP44	Lid and two-ramp system	2-III (continuation 1)	–	Lug or cavity	2-IV (continuation 1)	–
	IP66/IP67 and IP67	Two-ramp system	2-III (continuation 2)	–	Bayonet ring	2-IV (continuation 2)	–
125/100	IP66/IP67 and IP67[1)]	Two-ramp system	2-III (continuation 2)	–	Bayonet ring	2-IV (continuation 2)	–

1) When 125/100 A socket-outlets are mounted on or integrated with enclosures, the whole unit can also be IP44.

14 General construction

This clause of part 1 is applicable except as follows:

Addition:

Accessories having a rated current of 63/60 A shall be IP44 or IP66/IP67 and IP67.

Accessories having a rated current of 125/100 A shall be IP66/IP67 and IP67.

When 125/100 A socket-outlets are mounted on or integrated with enclosures, the whole unit can be IP44.

14.101 *Additional subclause:*

It shall not be possible to operate the phase inverting means unintentionally or to operate the phase inverting means when the phase inverter is inserted in the complementary accessory.

The phase inverting means shall incorporate a latching means to retain it in its defined position.

Compliance is checked by inspection and manual test.

The operation of the phase inverting means shall not damage the cable or wiring.

Compliance is checked by inspection and by the test of clause 21.

15 Construction of socket-outlets

This clause of part 1 is applicable except as follows:

15.1 *Addition:*

Contact tubes shall be self-adjusting and so designed as to ensure adequate contact continuity before and after a number of operations corresponding to their operational life.

Contact tubes other than the earth-contact shall be floating.

Earth contact tubes need not be floating, provided that they have the necessary resilience in all directions.

Compliance is checked by inspection and by the following test:

The sample is mounted so that the axes of the contact tubes are vertical with the contact openings downwards.

A gauge of hardened steel, with a finish of 0,002 mm and free from grease, having the dimensions shown in Table 110, is inserted into each contact tube, also free from grease, and the force necessary to withdraw the gauge is measured.

The sum of the force and the weight of the gauge shall exceed the minimum total force shown in Table 110.

Table 110

Nominal pin diameter mm	**Gauge**	
	Diameter of gauge mm $^{+0}_{-0,01}$	**Minimum total force** N
5	4,80	2,5
6	5,80	5
7	6,80	5
8	7,80	10
10	9,80	15
12	11,80	20

This test shall be made after that of 15.2.

15.2 *Replacement:*

The pressure exerted by the contact tubes on the pins of a plug shall not be so great as to prevent easy insertion and withdrawal of the plug.

Compliance is checked by determining the force necessary to withdraw the test plug from the sample, this being mounted so that the axes of the contact tubes are vertical with the contact opening downwards, as shown in Figure 115.

A test plug provided with pins having the dimensions shown in Table 111 is inserted into the sample.

Table 111

Nominal pin diameter mm	Diameter of pins of the test plug mm $^{+0,01}_{0}$
5	5,00
6	6,00
7	7,00
8	8,00
10	10,00
12	12,00

The principal weight, together with the supplementary weight (the latter being such that it exerts a force equal to one-tenth of the force exerted by the principal weight) and the test plug, exert a force equal to the maximum withdrawal force shown in Table 112.

The principal weight is hung without jolting on the test plug, and the supplementary weight is allowed to fall from a height of 5 cm onto the principal weight.

The plug shall not remain in the sample.

Table 112

Rated current A		Maximum withdrawal force
Series I	**Series II**	N
16	20	150
32	30	150
63	60	275
125	100	400
NOTE Details of the test plugs are under consideration.		

15.7 *Modification:*

Instead of the third paragraph of the requirements, the following applies:

Socket-outlets, splash-proof or up to and including IP44, designed for only one mounting position, shall have provision for opening a drain hole at least 5 mm in diameter, or 20 mm^2 in area with a width of at least 3 mm, which is effective when the socket-outlet is in the mounting position.

16 Construction of plugs and connectors

This clause of part 1 is applicable except as follows:

16.1 *Replacement of the third paragraph by the following:*

Accessories shall be so designed that they can only be reassembled so as to ensure the correct angular relationship between key(s), keyway(s), the earthing pin and the earthing-contact tube, as originally assembled.

Compliance is checked by inspection and, if necessary, by manual test.

Tests to be carried out are those described in 15.1 and 15.2.

16.101 *Additional subclause:*

Pins shall be solid.

Compliance is checked by inspection.

16.102 *Additional subclause:*

Plugs rated up to 32 A may incorporate a phase inverting means. These plugs shall comply with the general requirements for plugs and with clause 21 for phase inverters. They shall be delivered with an instruction sheet with the following information:

> Use class 5 or class 6 flexible conductors only and make sure that the conductors can move to permit operation of the phase inverting means.

An integral switching device shall not be used as a phase inverting means.

The phase inverting means shall be proconditioned when wired with class 5 cables according to clause 23 by carrying out 1 000 position changing operations.

17 Construction of appliance inlets

This clause of part 1 is applicable except as follows:

Additional subclauses:

17.101 Pins shall be solid.

Compliance is checked by inspection.

17.102 Appliance inlets rated up to 32 A may incorporate a phase inverting means. These inlets shall comply with the general requirements for inlets and clause 21 for phase inverters. They shall be delivered with an instructions sheet with the following information:

> Use class 5 or class 6 flexible conductors only and make sure that the conductors can move to permit operation of the phase inverting means.

For appliance inlets, switches can be used as phase inverting means.

Switches shall comply with IEC 60947-3 in a utilisation category of at least AC 22A.

The phase inverting means shall be preconditioned when wired with class 5 cables according to clause 23, by carrying out 1 000 position changing operations.

18 Degrees of protection

This clause of part 1 is applicable.

19 Insulation resistance and dielectric strength

This clause of part 1 is applicable except as follows:

19.1 *Add before the note:*

For phase inverters, the testing is carried out with the phase inverting means in each of the end positions.

19.4 *Replacement:*

Immediately after the test of 19.3 it shall not be possible to engage accessories with enclosures of thermoplastic material with gauges having an earthing-contact position or a minor key or keyway position different from that of the sample.

For socket-outlets and connector having rated operating voltages exceeding 50 V, the gauges shown in Figure 104 are used. For plugs and appliance inlets having rated operating voltages exceeding 50 V, the gauges shown in Figure 109 are used.

For 16/20 A and 32/30 A socket-outlets and connectors having rated operating voltages not exceeding 50 V, the gauges shown in Figure 111 are used. For plugs and appliance inlets having rated operating voltages not exceeding 50 V, the gauges shown in Figure 113 are used.

The gauges are applied with a force of 200 N applied for 1 min.

20 Breaking capacity

This clause of part 1 is applicable except as follows:

Addition:

Plugs and appliance inlets complying with this standard are not to be tested.

21 Normal operation

This clause of part 1 is applicable except as follows:

Addition:

Plugs and appliance inlets complying with this standard are not to be tested.

Phase inverters are to be tested without load. The phase inverter shall be tested in each position for half of the cycles.

The wires of the cable shall not be twisted or damaged or show harmful alterations of cable insulation or broken strands in wires. The inverting means shall remain functional.

Compliance is checked by inspection.

22 Temperature rise

This clause of part 1 is applicable except as follows:

Addition:

Phase inverters are to be tested in each of the end positions.

23 Flexible cables and their connection

This clause of part 1 is applicable except as follows:

23.1 *Addition:*

Cable anchorages shall be of insulating material or be provided with an insulating lining fixed to the metal parts.

24 Mechanical strength

This clause of part 1 is applicable.

25 Screws, current-carrying parts and connections

This clause of part 1 is applicable.

26 Creepage distances, clearances and distances through sealing compound

This clause of part 1 is applicable.

27 Resistance to heat, fire and tracking

This clause of part 1 is applicable.

28 Corrosion and resistance to rusting

This clause of part 1 is applicable.

29 Conditional short-circuit current withstand test

Replacement:

Accessories according to this part are considered to have a minimum prospective short-circuit current withstand of 10 kA. If a higher value is requested, this clause of part 1 is applicable.

30 Electromagnetic compatibility

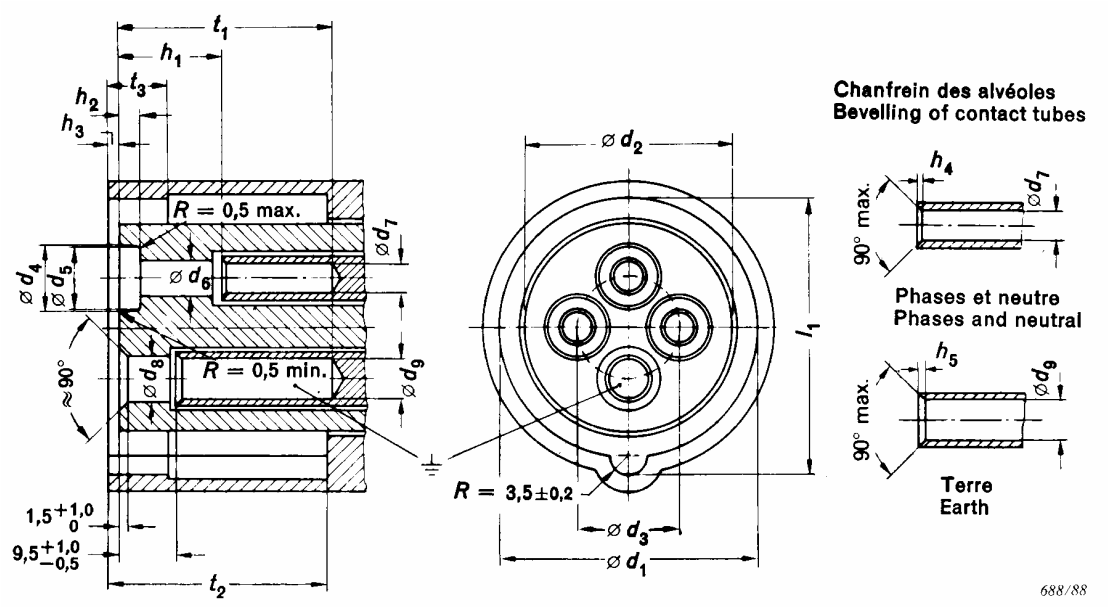
This clause of part 1 is applicable.

FEUILLE DE NORMES 2-I

SOCLES DE PRISES DE COURANT ET PRISES MOBILES 16/20 A ET 32/30 A DE TENSION NOMINALE D'EMPLOI DÉPASSANT 50 V

STANDARD SHEET 2-I

16/20 A AND 32/30 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V



Les trous ou les perçages éventuels pratiqués dans la face avant, en dehors des alvéoles, ne doivent pas avoir une profondeur supérieure à 10 mm.

Exception: voir note[2)].

Les socles de prises de courant à verrouillage mécanique doivent être conçus pour empêcher tout mouvement angulaire excessif de la fiche introduite qui rendrait le verrouillage mécanique inefficace.

Holes or recesses in the front face, if any, other than those for contact tubes, shall not have a depth of more than 10 mm.

Exception: see note[2)].

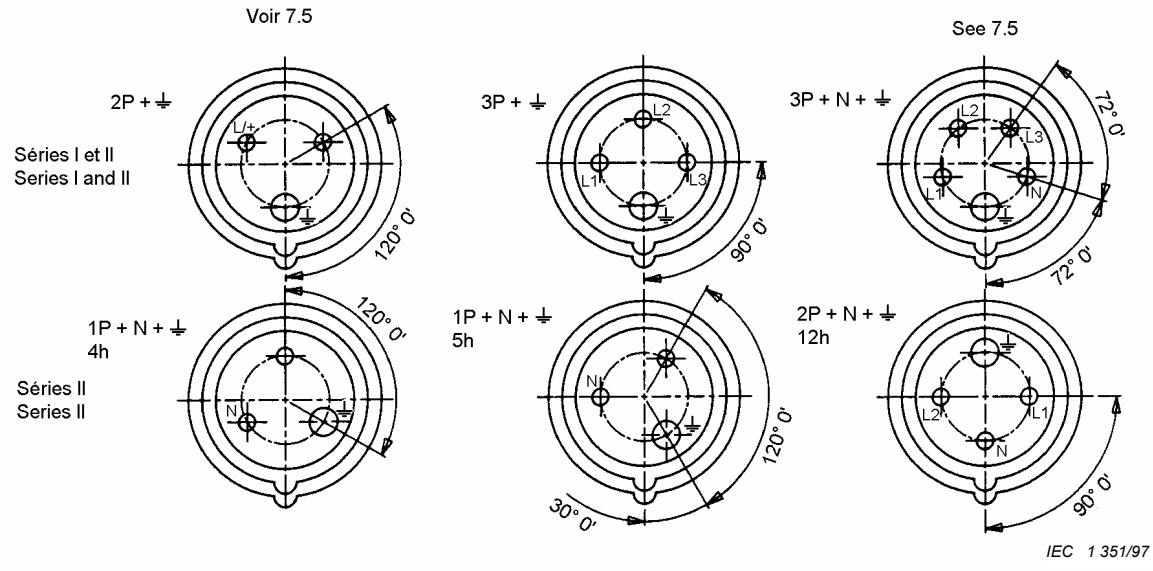
Socket-outlet for mechanical interlocking shall be so designed that any excessive angular movement of a fully inserted plug which would render the mechanical interlocking ineffective is prevented.

DISPOSITION DES ALVÉOLES

Vue de face des alvéoles du socle de prise de courant ou de la prise mobile

ARRANGEMENT OF CONTACT TUBES

Front view of contact tubes of socket-outlet or connector



Dimensions pour la feuille de normes 2-I *Dimensions for standard sheet 2-I*

Courant nominal		1) d_1		2) d_2	d_3	d_4	d_5	d_6	3) d_7	d_8	3) d_9	4) h_1	h_2	h_3	5) h_4		5) h_5		1) l_1	t_1 min.	t_2 min.	t_3 min.
Rated current A	**Type**		Tol.	0 –1,5	±0,5	+1,0 0	min.	+0,6 0		+0,6 0		+1,0 –0,5	+3,0 0	0 –1	max.	min.	max.	min.	+0,6 0			
16/20	2P + ⏚	44,3	+0,4 0	36,0	17,5	11,6	11,0	6,0	5	8,0	7	19,5	3,8	2	0,8	0,3	1,2	0,4	47,5	37	38	10
	3P + ⏚	50,4	+0,5 0	40,8	21,5	11,6	11,0	6,0	5	8,0	7	19,5	3,8	2	0,8	0,3	1,2	0,4	54,0	37	38	10
	3P+N+ ⏚	57,3	+0,6 0	46,4	26,5	11,6	11,0	6,0	5	8,0	7	19,5	3,8	2	0,8	0,3	1,2	0,4	61,3	37	38	10
32/30	2P + ⏚	58,6	+0,6 0	47,0	25,0	13,6	13,0	7,0	6	9,1	8	21,5	5,3	3	1,0	0,3	1,5	0,5	64,6	45	48	15
	3P + ⏚	58,6	+0,6 0	47,0	25,0	13,6	13,0	7,0	6	9,1	8	21,5	5,3	3	1,0	0,3	1,5	0,5	64,6	45	48	15
	3P+N+ ⏚	64,7	+0,6 0	52,9	30,3	13,6	13,0	7,0	6	9,1	8	21,5	5,3	3	1,0	0,3	1,5	0,5	71,2	45	48	15

Dimensions en millimètres *Dimensions in millimetres*

1) Les dimensions d_1 et l_1 doivent rester dans les limites prescrites sur la profondeur t_3. Au-delà elles peuvent être plus grandes mais pas plus petites

2) La dimension d_2 ne doit dépasser la limite prescrite en aucun point sur la profondeur totale et doit rester dans les limites prescrites sur une profondeur minimale de 3 mm, à l'exception d'un maximum de:

– trois encoches pour les appareils 2P + ⏚

– quatre encoches pour les appareils 3P + ⏚

– cinq encoches pour les appareils 3P + N + ⏚

réparties autour de la circonférence avec pas plus d'une entre trous adjacents des alvéoles et chacune ayant une largeur ne dépassant pas 10 mm, y compris les rayons de courbure. Des trous plus profonds que 10 mm sont permis dans la région des encoches.

3) Les dimensions d_7 et d_9 se rapportent aux broches; il n'est pas nécessaire que les alvéoles soient circulaires.

4) Pour les appareils de type 3P + N + ⏚ et les appareils 2P + N + ⏚, 12 h, de la série II, la valeur pour la dimension h_1 est de 16,0 pour le contact du neutre.

5) Le chanfrein des alvéoles peut être arrondi vers la surface cylindrique intérieure dans les limites de 1 fois ½ la valeur h_4 max. ou h_5 max.

1) The dimensions d_1 and l_1 shall be within the prescribed limits over the distance t_3. Beyond this, they may be larger but not smaller.

2) The dimension d_2 shall not exceed the prescribed limit at any point over the whole depth, and shall be within the prescribed limits over a minimum depth of 3 mm, with the exception of a maximum of:

– three cut-outs for the accessories 2P + ⏚

– four cut-outs for the accessories 3P + ⏚; and

– five cut-outs for the accessories 3P + N + ⏚

spaced along the circumference with not more than one between adjacent holes for the contact tubes and each having a width not exceeding 10 mm, including any radii. Holes deeper than 10 mm in the area of cut-outs are allowed.

3) The dimensions d_7 and d_9 refer to the pins; the contact tubes need not be circular.

4) For type 3P + N + ⏚ and series II, 2P + N + ⏚, 12 h accessories, the value for the dimension h_1 is 16,0 for the neutral contact.

5) The bevelling of the contact tubes may be well rounded off towards the internal cylindrical surface within a distance of 1½ times the value h_4 max. or h_5 max.

FEUILLE DE NORMES 2-I
(suite 1)

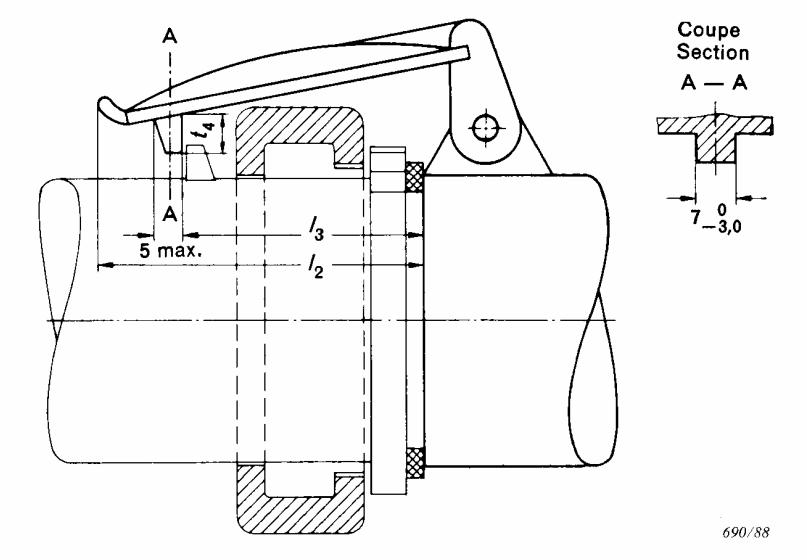
DISPOSITIFS DE RETENUE POUR LES SOCLES DE PRISES DE COURANT ET PRISES MOBILES IP44

STANDARD SHEET 2-I
(continuation 1)

RETAINING MEANS FOR IP44 SOCKET-OUTLETS AND CONNECTORS

Couvercle ou levier représenté dans la position de blocage

Lid or lever shown in latched position



Courant nominal Rated current A	Type	l_2 max.	l_3		t_4 min.
				Tol.	
16/20	2P + ⏚	70	41,5	$^{+1,5}_{0}$	5
	3P + ⏚	75	47,5	$^{+1,5}_{0}$	5
	3P + N + ⏚	85	53,5	$^{+1,5}_{0}$	6
32/30	2P + ⏚	85	54,5	$^{+1,5}_{0}$	6
	3P + ⏚	85	54,5	$^{+1,5}_{0}$	6
	3P + N + ⏚	100	60,5	$^{+2,0}_{0}$	7

Dimensions en millimètres *Dimensions in millimetres*

Pour les appareils IP44, le dispositif de retenue doit être en forme de couvercle tel que les fiches ou socles de connecteurs IP66/IP67 et IP67, conformes à la feuille de normes 2-II et munis d'une bague à baïonnette ayant les dimensions maximales, puissent être correctement introduits et retenus.

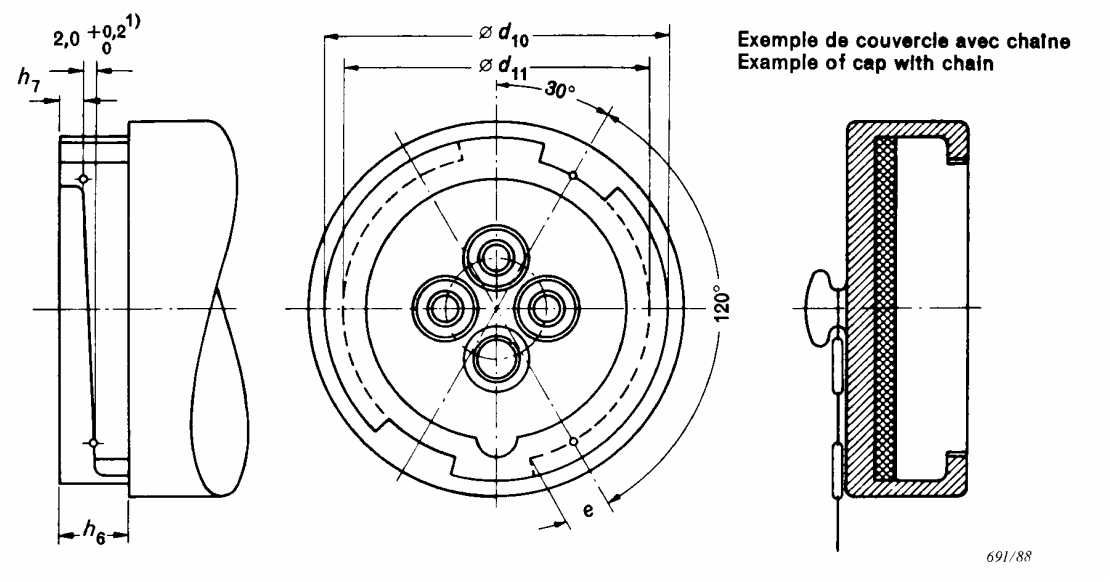
For IP44 accessories, the retaining means shall be in the form of a lid such that IP66/IP67 and IP67 plugs or appliance inlets complying with standard sheet 2-II, and provided with a bayonet ring having maximum dimensions, can be correctly introduced and retained.

FEUILLE DE NORMES 2-I
(suite 2)

DISPOSITIFS DE RETENUE POUR LES SOCLES DE PRISES DE COURANT ET PRISES MOBILES IP66/IP67 ET IP67

STANDARD SHEET 2-I
(continuation 2)

RETAINING MEANS FOR IP66/IP67 AND IP67 SOCKET-OUTLETS AND CONNECTORS



Courant nominal Rated current A	Type	d_{10} $^{0}_{-0,5}$	d_{11} $^{0}_{-0,5}$	e min.	h_6 min.	h_7 $^{0}_{-0,2}$
16/20	2P + ⏚	60	53	8	12	4,2
	3P + ⏚	68	60	10	12	4,2
	3P + N + ⏚	76	68	12	12	4,2
32/30	2P + ⏚	82	72	12	14	6,2
	3P + ⏚	82	72	12	14	6,2
	3P + N + ⏚	89	79	15	14	6,2

Dimensions en millimètres *Dimensions in millimetres*

1) La pente des rampes doit être telle que cette dimension se rapporte à l'angle de 120° indiqué.

1) The inclination of the ramps shall be such that this dimension refers to angle of 120° shown.

Le dispositif de retenue doit être en forme de rampes à baïonnette de sorte que les fiches ou socles de connecteurs IP66/IP67 et IP67, conformes à la feuille de normes 2-II et munis d'une bague à baïonnette ayant les dimensions maximales, puissent être correctement introduits sous un angle de (30 ± 3)° et tournés de 120° maximum.

Les dessins ne préjugent pas les détails non cotés.

The retaining means shall be in the form of bayonet ramps such that IP66/IP67 and IP67 plugs or appliance inlets complying with standard sheet 2-II, and provided with a bayonet ring having maximum dimensions, can be correctly introduced at an angle of (30 ± 3)° and rotated up to a maximum of 120°.

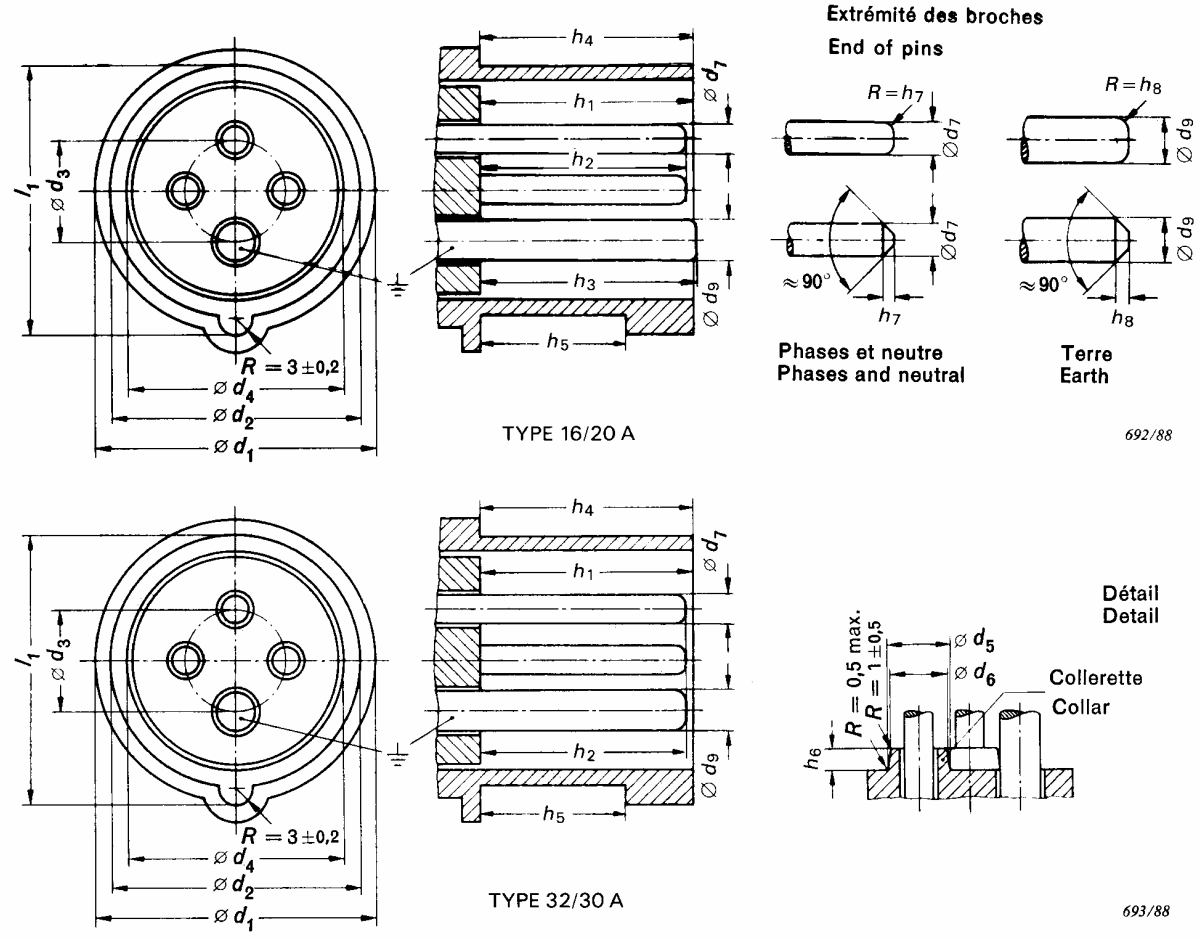
The sketches are not intended to govern design except as regards the dimensions shown.

FEUILLE DE NORMES 2-II

FICHES ET SOCLES DE CONNECTEURS 16/20 ET 32/30 A DE TENSION NOMINALE D'EMPLOI DÉPASSANT 50 V

STANDARD SHEET 2-II

16/20 A AND 32/30 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

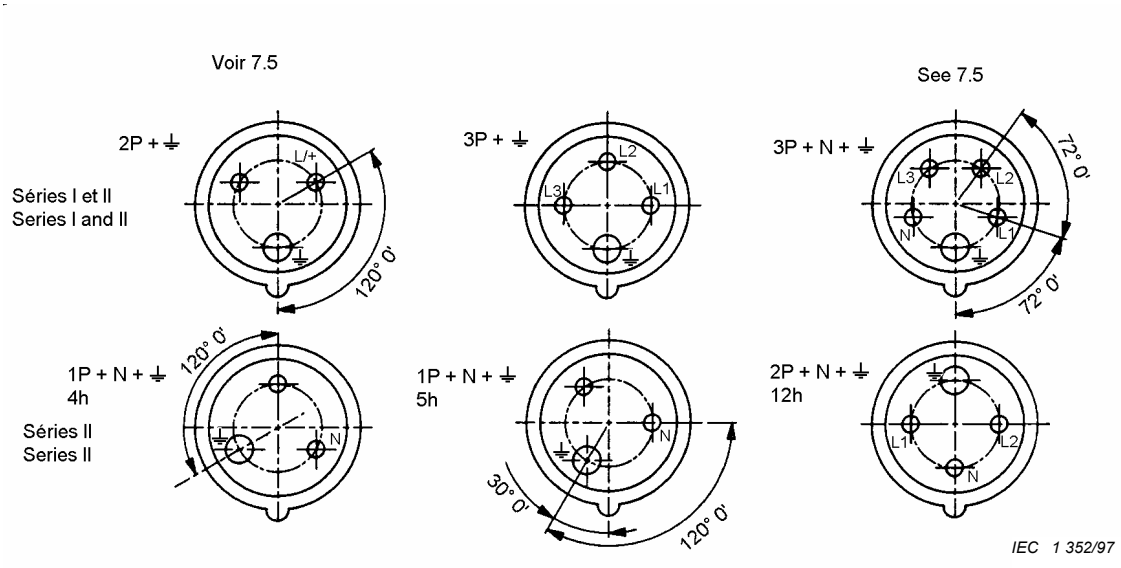


DISPOSITION DES BROCHES

Vue de face des broches de la fiche ou du socle de connecteur

ARRANGEMENT OF PINS

Front view of pins of plugs or appliance inlet



Dimensions pour la feuille de norme 2-II — *Dimensions for standard sheet 2-II*

Courant nominal **Rated current** A	**Type**	d_1 min.	d_2	Tol.	d_3 ±0,5	d_4	Tol. 4)	Tol. 5)	1) d_5 max.	1) d_6 max.	d_7 0 –0,075	d_9 0 –0,09	h_1 0 –1	h_2 0 –1	h_3 0 –1	h_4 0 –1	h_5 +1,0 0 2)	h_5 3)	1) h_6 max.	6) h_7 max.	h_7 min.	6) h_7 max.	h_7 min.	l_1 4)	l_1 5)	l_1 Tol.
16/20	2P + ⏚	47,5	43,5	0 –0,6	17,5	37,9	+1,9 0	+1,5 0	11	10	5	7	37	36	38	37	24,0	27,5	3,5	1,7	0,8	1,5	0,75	46,5	47,0	0 –0,4
	3P + ⏚	53,5	49,5	0 –0,6	21,5	42,8	+1,9 0	+1,5 0	11	10	5	7	37	36	38	37	24,0	27,5	3,5	1,7	0,8	1,5	0,75	52,9	53,6	0 –0,5
	3P + N + ⏚	60,5	56,1	0 –0,6	26,5	48,8	+1,9 0	+1,5 0	11	10	5	7	37	36	38	37	24,0	27,5	3,5	1,7	0,8	1,5	0,75	60,1	61,0	0 –0,6
32/30	2P + ⏚	61,5	57,3	0 –0,8	25,0	49,7	+1,9 0	+1,6 0	13	12	6	8	46	45	–	46	32,0	35,5	5,0	2,0	1,0	2,5	1,2	63,2	63,2	0 –0,6
	3P + ⏚	61,5	57,3	0 –0,8	25,0	49,7	+1,9 0	+1,6 0	13	12	6	8	46	45	–	46	32,0	35,5	5,0	2,0	1,0	2,5	1,2	63,2	63,2	0 –0,6
	3P + N + ⏚	67,5	63,4	0 –0,8	30,3	55,6	+1,9 0	+1,6 0	13	12	6	8	46	45	–	46	32,0	35,5	5,0	2,0	1,0	2,5	1,2	69,9	69,9	0 –0,7

Dimensions en millimètres — *Dimensions in millimetres*

1) Collerettes, conformes à la vue de détail, prescrites pour les appareils de tension nominale dépassant 500 V, facultatives pour les autres appareils.

2) Pour les appareils IP44.

3) Pour les appareils IP66/IP67 et IP67.

4) Pour les appareils ayant des enveloppes métalliques.

5) Pour les appareils ayant des enveloppes en matériau isolant.

6) L'extrémité des broches peut être arrondie vers la surface cylindrique extérieure dans les limites de 1 fois ½ la valeur h_7 max. ou h_8 max.

1) Collars, as shown in the detail, required for accessories having rated operating voltages exceeding 500 V, optional for other accessories.

2) For IP44 accessories.

3) For IP66/IP67 and IP67 accessories.

4) For accessories with metal enclosures.

5) For accessories with enclosures of insulating material.

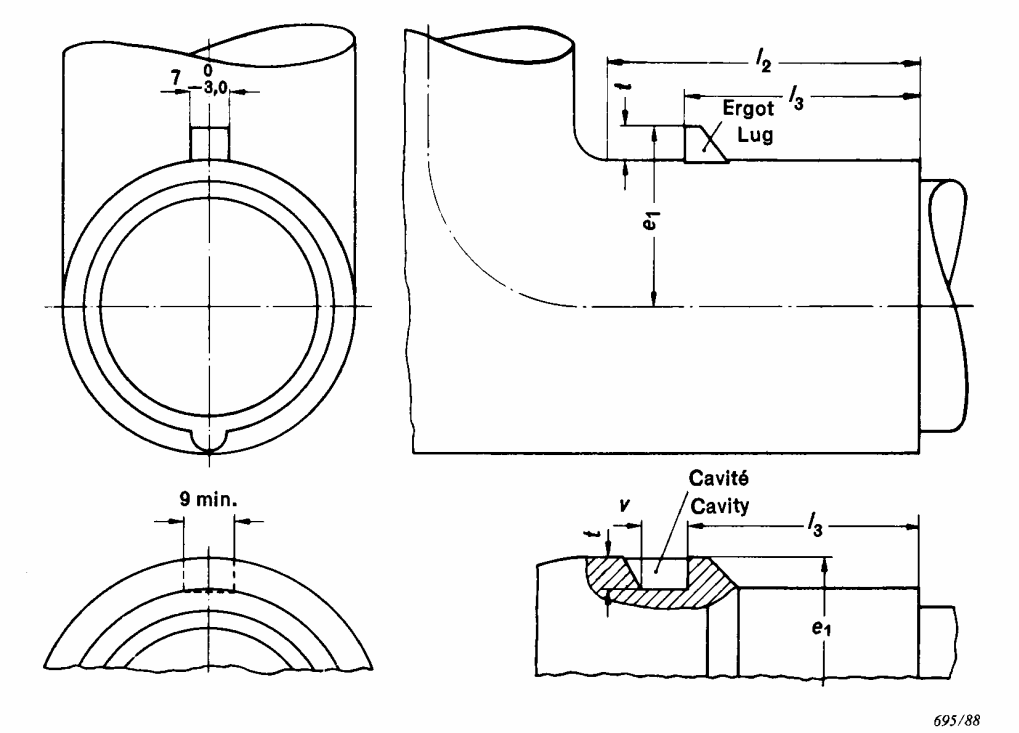
6) The end of the pins may be well rounded off towards the external cylindrical surface within a distance of 1½ times the value h_7 max. or h_8 max.

FEUILLE DE NORMES 2-II
(suite 1)

DISPOSITIFS DE RETENUE POUR LES FICHES ET SOCLES DE CONNECTEURS IP44

STANDARD SHEET 2-II
(continuation 1)

RETAINING MEANS FOR IP44 PLUGS AND APPLIANCE INLETS



Courant nominal Rated current A	Type	e_1 $^{0}_{-2}$	l_2 [1] min.	l_3		t min.	v min.
					Tol.		
16/20	2P + ⏚	31	75	41	$^{0}_{-1,0}$	4	8
	3P + ⏚	35	80	47	$^{0}_{-1,0}$	5	8
	3P + N + ⏚	39	90	53	$^{0}_{-1,0}$	7	8
32/30	2P + ⏚	41	90	54	$^{0}_{-1,0}$	7	8
	3P + ⏚	41	90	54	$^{0}_{-1,0}$	7	8
	3P + N + ⏚	46	105	60	$^{0}_{-1,5}$	8	9

Dimensions en millimètres *Dimensions in millimetres*

[1] Espace libre minimal nécessaire pour le débattement du couvercle à charnière.

Le dispositif de retenue doit être en forme d'ergot ou de cavité, situé sur la position 12 h.

[1] Minimum clearance required for movement of hinged lid.

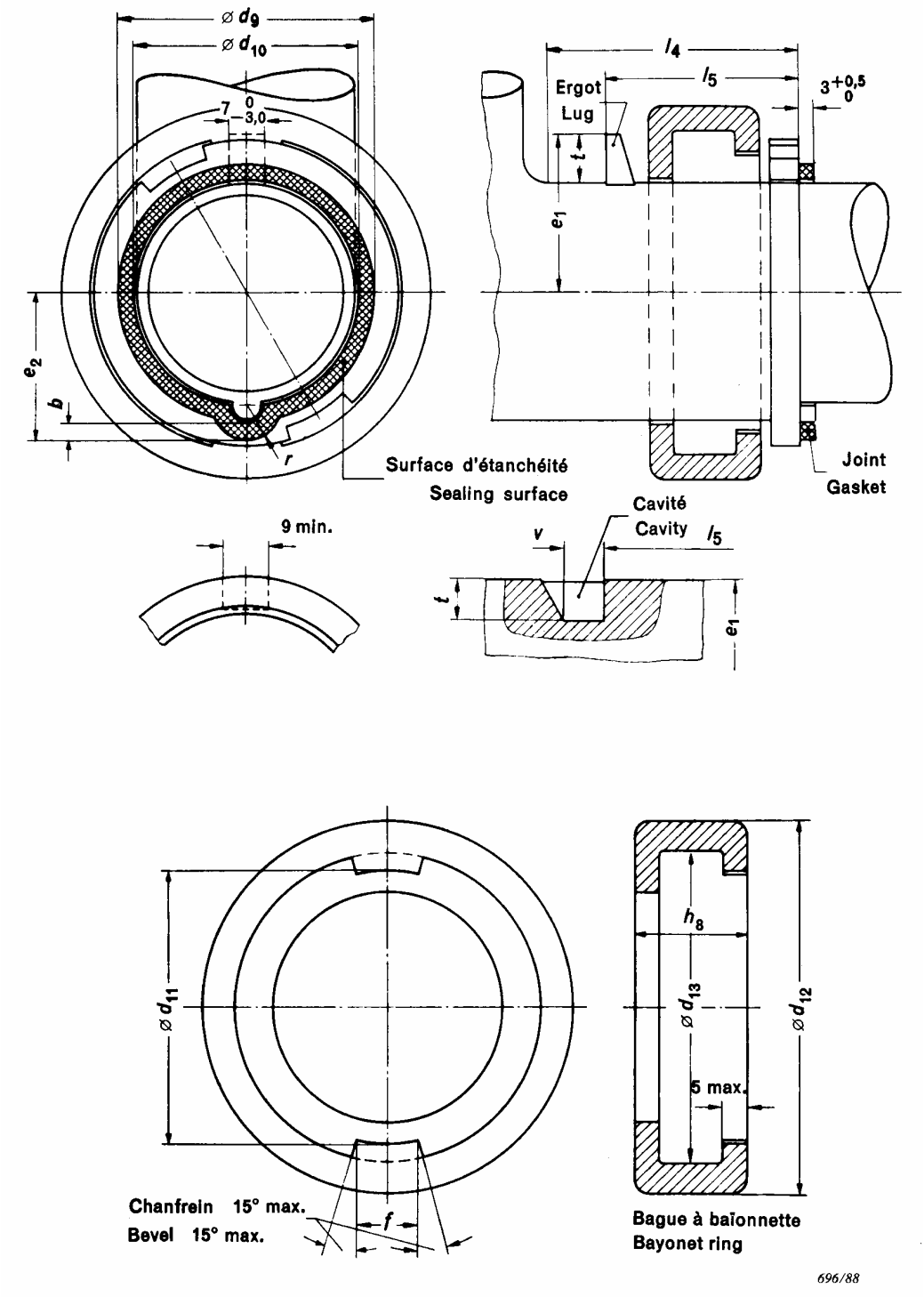
The retaining mean shall be in the form of a lug or a cavity, at position 12 h.

FEUILLE DE NORMES 2-II
(suite 2)

DISPOSITIFS DE RETENUE POUR LES FICHES ET SOCLES DE CONNECTEURS IP66/IP67 ET IP67

STANDARD SHEET 2-II
(continuation 2)

RETAINING MEANS FOR IP66/IP67 AND IP67 PLUGS AND APPLIANCE INLETS



Dimensions pour la feuille de normes 2-II (suite 2)

Dimensions for standard sheet 2-II (continuation 2)

Courant nominal **Rated current** A	**Type**	**Ergot et cavité** **Nose and cavity**						**Surface d'étanchéïté** **Sealing surface**					**Bague à baïonnette** **Bayonet ring**				
		e_1 $^{0}_{-2}$	[1] l_4 min.	l_5	Tol.	t min.	v min.	b min.	d_9 min.	d_{10} max.	e_2 min.	r min.	d_{11} $^{+0,5}_{0}$	d_{12} max.	d_{13} min.	f $^{0}_{-0,5}$	h_8 max.
16/20	2P + ⏚	31	75	38	$^{0}_{-1,0}$	4	8	3,0	50,8	44,8	28,6	6,7	53,5	73	60,5	12	22
	3P + ⏚	35	80	44	$^{0}_{-1,0}$	5	8	3,5	57,9	50,9	32,6	7,2	60,5	81	68,5	16	24
	3P + N + ⏚	39	90	50	$^{0}_{-1,0}$	7	8	4,0	65,8	57,8	36,9	7,7	68,5	89	76,5	19	26
32/30	2P + ⏚	41	90	51	$^{0}_{-1,0}$	7	8	4,6	69,5	59,1	40,1	8,2	72,5	95	82,5	19	30
	3P + ⏚	41	90	51	$^{0}_{-1,0}$	7	8	4,6	69,5	59,1	40,1	8,2	72,5	95	82,5	19	30
	3P + N + ⏚	46	105	57	$^{0}_{-1,5}$	8	9	5,3	76,6	65,2	43,4	9,0	79,5	102	89,5	22	32

Dimensions en millimètres

Dimensions in millimetres

[1] Espace libre minimal nécessaire pour le débattement du couvercle à charnière.

[1] Minimum clearance required for movement of hinged lid.

Les dispositifs de retenue doivent être en forme de bague à baïonnette et d'ergot ou de cavité, situés sur la position 12 h.

Les dessins ne préjugent pas les détails non cotés.

The retaining means shall be in the form of a bayonet ring and a lug or a cavity, at position 12 h.

The sketches are not intended to govern design except as regards the dimensions shown.

FEUILLE DE NORMES 2-III

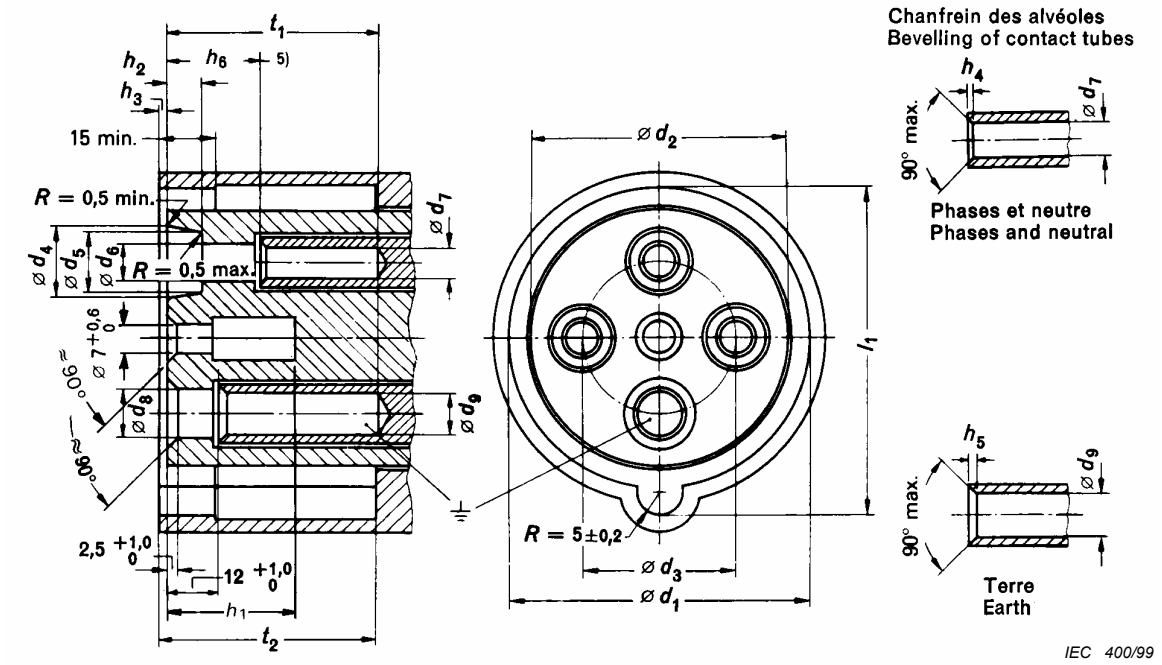
SOCLES DE PRISES DE COURANT ET PRISES MOBILES 63/60 A ET 125/100 A DE TENSION NOMINALE D'EMPLOI DÉPASSANT 50 V

SANS CONTACT PILOTE

STANDARD SHEET 2-III

63/60 A AND 125/100 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

WITHOUT PILOT CONTACT



Un trou dans la face avant est obligatoire pour accepter les broches pilotes de fiches ou de socles de connecteurs.

Les trous ou les perçages éventuels pratiqués dans la face avant, en dehors des alvéoles, ne doivent pas avoir une profondeur supérieure à 10 mm (exception, voir note[2)]), à l'exception des trous des broches pilotes.

Les socles de prises de courant à verrouillage mécanique doivent être conçus pour empêcher tout mouvement angulaire excessif de la fiche introduite qui rendrait le verrouillage mécanique inefficace.

A hole in the front face is mandatory to accept the pilot pins of plugs or appliance inlets.

Holes or recesses in the front face, if any, other than those for contact holes shall have a depth of not more than 10 mm except for pilot pin holes (exception: see note[2)]).

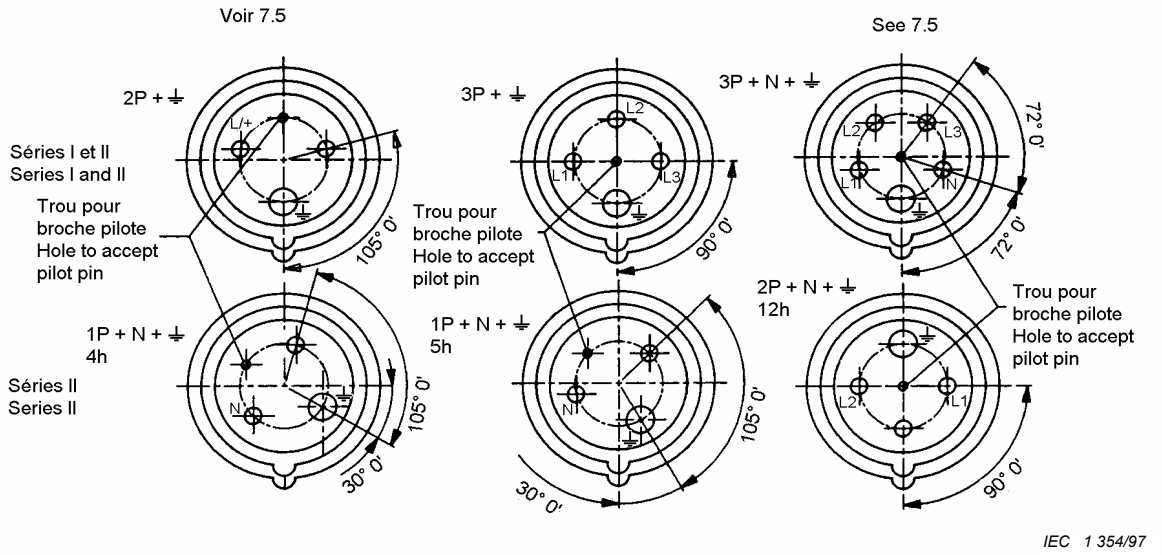
Socket-outlets for mechanical interlocking shall be so designed that any angular movement of a fully inserted plug which would render the mechanical interlocking ineffective is prevented.

DISPOSITION DES ALVÉOLES

Vue de face des alvéoles du socle de prise de courant ou de la prise mobile

ARRANGEMENT OF CONTACT TUBES

Front view of contact tubes of socket-outlet or connector



FEUILLE DE NORMES 2-IIIa

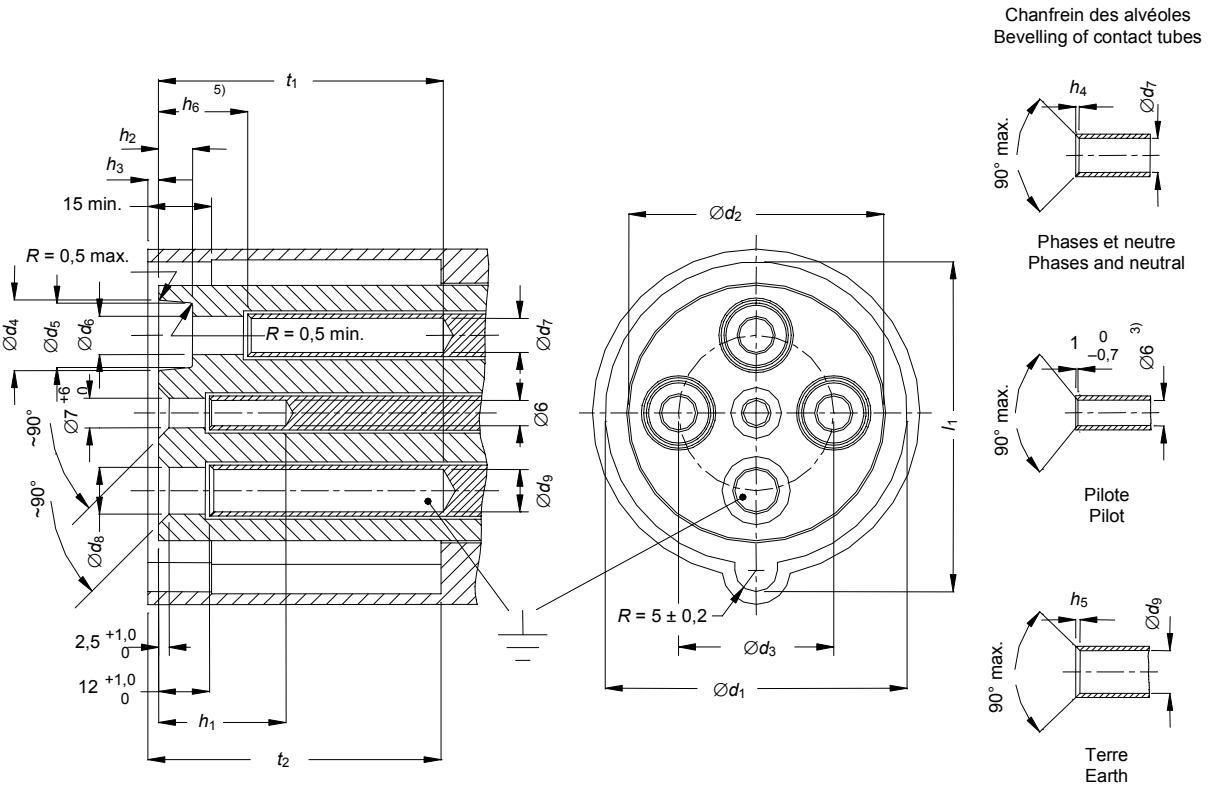
SOCLES DE PRISES DE COURANT ET PRISES MOBILES 63/60 A ET 125/100 A DE TENSION NOMINALE D'EMPLOI DÉPASSANT 50 V

AVEC CONTACT PILOTE

STANDARD SHEET 2-IIIa

63/60 A AND 125/100 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

WITH PILOT CONTACT



Les trous ou les perçages éventuels dans la face avant, en dehors des alvéoles, ne doivent pas avoir une profondeur supérieure à 10 mm (exception, voir note[2]).

Les socles de prises de courant à verrouillage mécanique doivent être conçus pour empêcher tout mouvement angulaire excessif de la fiche introduite qui rendrait le verrouillage mécanique inefficace.

Holes or recesses in the front face, if any, other than those for contact tubes, shall have a depth of not more than 10 mm (exception: see note[2]).

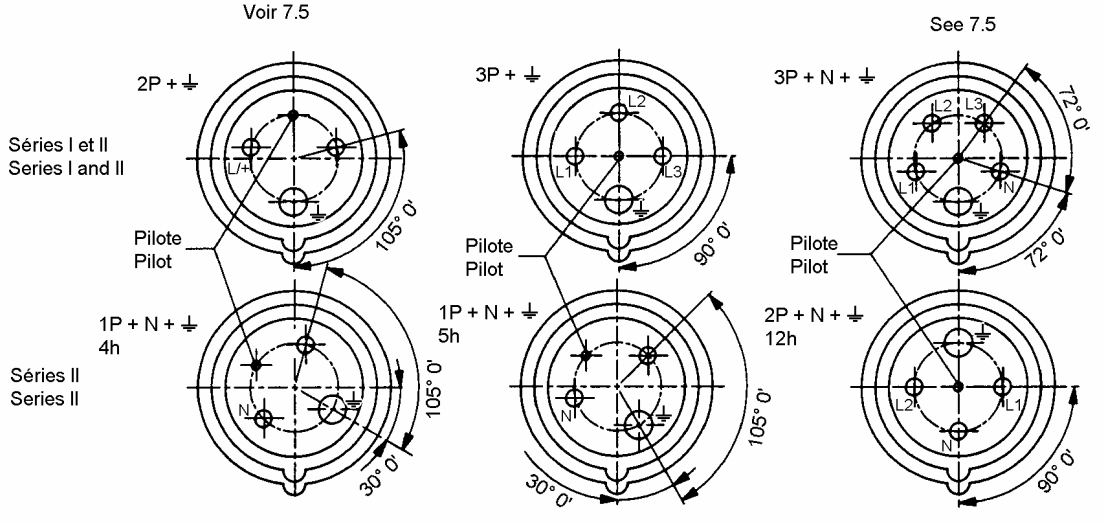
Socket-outlets for mechanical interlocking shall be so designed that any excessive movement of a fully inserted plug which would render the mechanical interlocking ineffective is prevented.

DISPOSITION DES ALVÉOLES

Vue de face des alvéoles du socle de prise de courant ou de la prise mobile

ARRANGEMENT OF CONTACT TUBES

Front view of contact tubes of socket-outlet or connector



Dimensions pour les feuilles de normes 2-III et 2-IIIa *Dimensions for standard sheets 2-III and 2-IIIa*

Type	Courant nominal / Rated current A	1) d_1 +0,8 0	2) d_2 0 −1,5	d_3 ±0,5	d_4 +1,0 0	d_5 min.	d_6 +0,6 0	3) d_7	d_8 +0,6 0	3) d_9	h_1 min.	h_2 +3,0 0	h_3 0 −1	4) h_4 max.	h_4 min.	4) h_5 max.	h_5 min.	1) l_1 +0,8 0	t_1 min.	t_2 min.
2P + ⏚	63/60	71,0	60,0	36,5	16,6	15,1	9,0	8	11,0	10	30,0	8,0	2,5	1,5	0,5	2,0	0,6	77,5	67	69
3P + ⏚																				
3P + N + ⏚	125/100	83,0	71,0	42,5	21,0	19,0	11,0	10	14,0	12	32,0	10,0	4	2,0	0,6	2,5	0,8	89,5	71	76

Dimensions en millimètres *Dimensions in millimetres*

1) Les dimensions d_1 et l_1 doivent rester dans les limites prescrites sur une profondeur de 15 mm. Au-delà, elles peuvent être plus grandes mais pas plus petites.

2) La dimension d_2 ne doit dépasser la limite prescrite en aucun point sur la profondeur totale et doit rester dans les limites prescrites sur une profondeur minimale de 6 mm, à l'exception d'un maximum de:

– trois encoches pour les appareils 2P + ⏚,

– quatre encoches pour les appareils 3P + ⏚,

– cinq encoches pour les appareils 3P + N + ⏚

réparties autour de la circonférence avec pas plus d'une entre trous adjacents des alvéoles et chacune ayant une largeur ne dépassant pas 15 mm, y compris les rayons de courbure. Des trous plus profonds que 10 mm sont permis dans la région des encoches.

3) Les dimensions d_7 et d_9 se rapportent aux broches; il n'est pas nécessaire que les alvéoles soient circulaires.

4) Le chanfrein des alvéoles peut être arrondi vers la surface cylindrique intérieure dans les limites de 1 fois ½ la valeur h_4 max. ou h_5 max.

5) Cette dimension doit être conforme au tableau ci-dessous:

1) The dimensions d_1 and l_1 shall be within the prescribed limits over a distance of 15 mm. Beyond this, they may be larger but not smaller.

2) The dimension d_2 shall not exceed the prescribed limit at any point over the whole depth, and shall be within the prescribed limits over a minimum depth of 6 mm with the exception of a maximum of:

– three cut-outs for the accessories 2P + ⏚,

– four cut-outs for the accessories 3P + ⏚, and

– five cut-outs for the accessories 3P + N + ⏚

spaced along the circumference, with not more than one between adjacent holes for the contact tubes, and each having a width not exceeding 15 mm including any radii. Holes deeper than 10 mm in the area of cut-outs are allowed.

3) The dimensions d_7 and d_9 refer to the pins; the contact tubes need not be circular.

4) The bevelling of the contact tubes may be rounded off towards the internal cylindrical surface within a distance of 1½ times the values h_4 max. or h_5 max.

5) The dimension shall be in accordance with the table below:

Valeur de h_6 pour les feuilles de normes 2-III et 2-IIIa *Value of h_6 for standard sheets 2-III and 2-IIIa*

Profondeur de l'alvéole	h_6 $^{+1}_{0}$ mm		Depth of the contact hole
Type	63/60 A	125/100 A	**Type**
Ensembles avec verrouillage électrique	21	21	Electrically interlocked assemblies
Ensembles avec verrouillage mécanique	21 ou/or 40	21 ou/or 40	Mechanically interlocked assemblies
Sans verrouillage	21 ou/or 40	40	Without interlock

Dimensions en millimètres *Dimensions in millimetres*

6) Pour les appareils 3P + N + ⏚ et les appareils série II 2P + N + ⏚, 12 h, la profondeur de l'alvéole du neutre doit être plus faible que celle des alvéoles de phase, mais plus grande que celle de l'alvéole de terre.

6) For 3P + N + ⏚ and series II, 2P + N + ⏚, 12 h, accessories, the depth of the neutral contact shall be less than for the phase contacts but greater than for the earth contact.

FEUILLE DE NORMES 2-III
(suite 1)

DISPOSITIFS DE RETENUE POUR LES SOCLES DE PRISES DE COURANT ET PRISES MOBILES 63/60 A IP44

TOUS TYPES

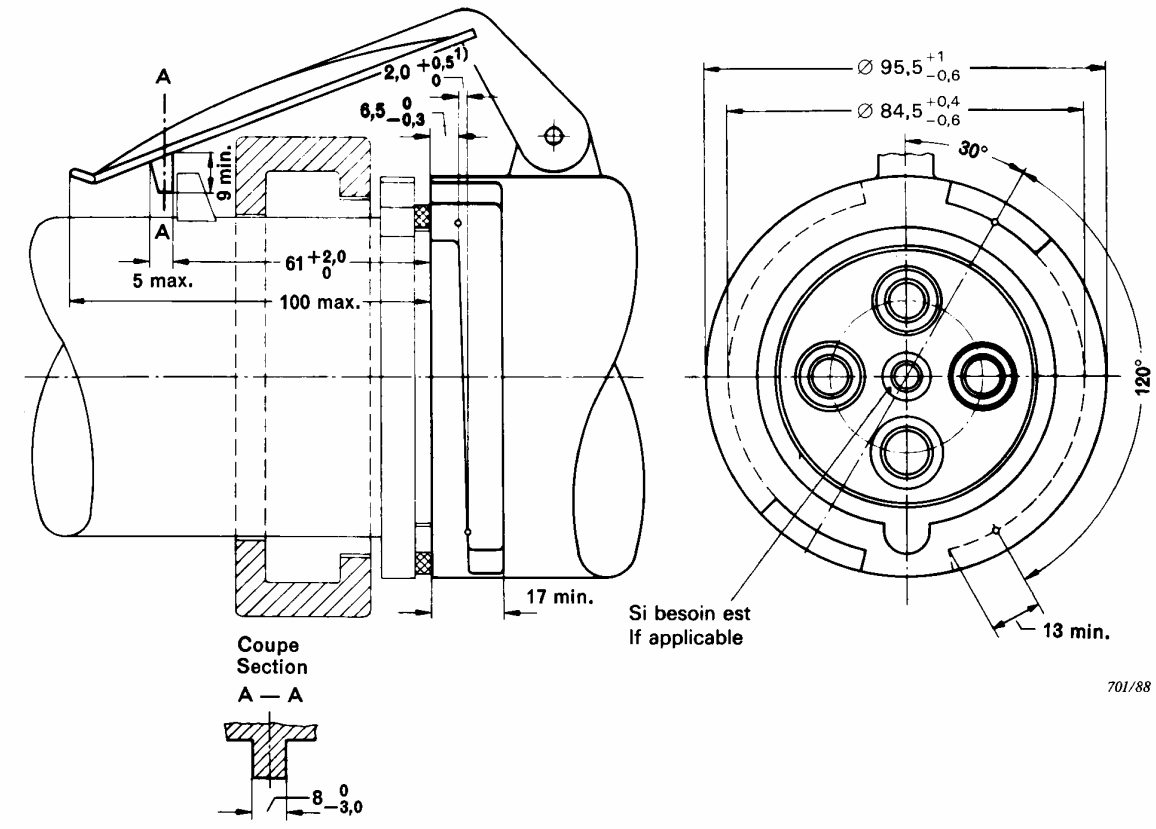
STANDARD SHEET 2-III
(continuation 1)

RETAINING MEANS FOR 63/60 A IP44 SOCKET-OUTLETS AND CONNECTORS

ALL TYPES

Couvercle représenté dans la position de blocage

Lid shown in latched position



Dimensions en millimètres

Dimensions in millimetres

[1] La pente des rampes doit être telle que cette dimension se rapporte à l'angle de 120° indiqué.

[1] The inclination of the ramps shall be such that this dimension refers to the angle of 120° shown.

Le dispositif de retenue doit être en forme de rampes à baïonnette et de couvercle tel que les fiches ou socles de connecteurs IP66/IP67 et IP67, conformes aux feuilles de normes 2-IV et 2-IVa et munis d'une bague à baïonnette ayant les dimensions maximales, puissent être correctement introduits sous un angle de (30 ± 3)° et tournés de 120° maximum.

The retaining means shall be in the form of bayonet ramps and a lid such that IP66/IP67 and IP67 plugs or appliance inlets complying with standard sheets 2-IV and 2-IVa, and provided with a bayonet ring having maximum dimensions, can be correctly introduced at an angle of (30 ± 3)° and rotated up to a maximum of 120°.

FEUILLE DE NORMES 2-III
(suite 2)

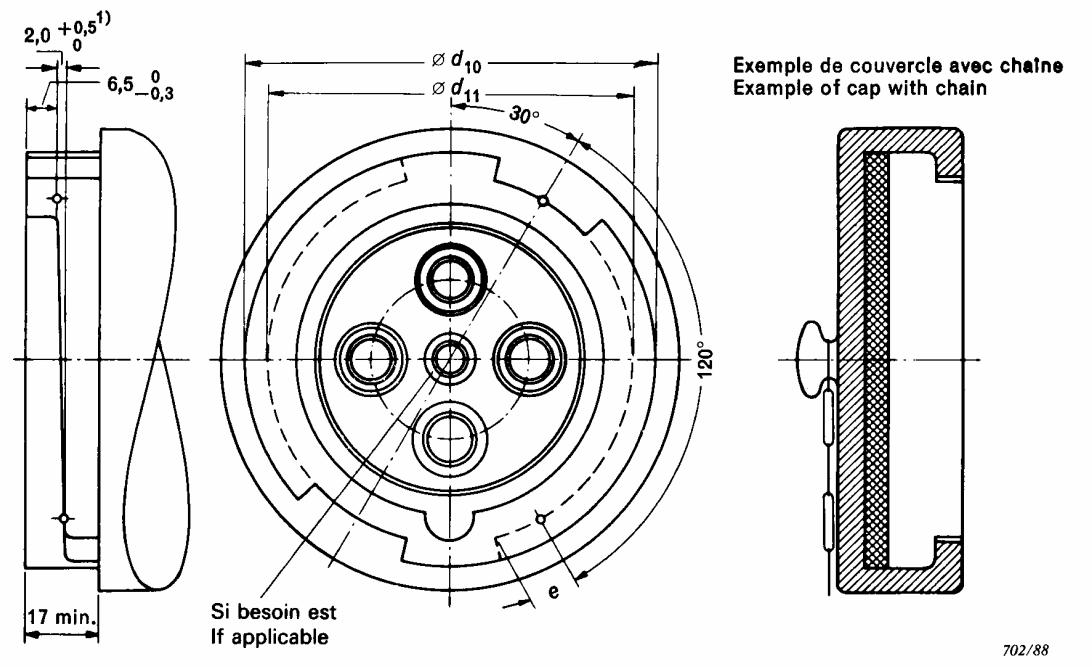
DISPOSITIFS DE RETENUE POUR LES SOCLES DE PRISES DE COURANT ET PRISES MOBILES 63/60 A ET 125/100 A IP66/IP67 ET IP67

TOUS TYPES

STANDARD SHEET 2-III
(continuation 2)

RETAINING MEANS FOR 63/60 A AND 125/100 A IP66/IP67 AND IP67 SOCKET-OUTLETS AND CONNECTORS

ALL TYPES



Type	Courant nominal Rated current A	d_{10} +1 −0,6	d_{11} +0,4 −0,6	e min.
2P + ⏚	63/60	95,5	84,5	13
3P + ⏚ 3P + N + ⏚	125/100	108,5	97,5	16

Dimensions en millimètres *Dimensions in millimetres*

1) La pente des rampes doit être telle que cette dimension se rapporte à l'angle de 120° indiqué.

1) The inclination of the ramps shall be such that this dimension refers to the angle of 120° shown.

Le dispositif de retenue doit être en forme de rampes à baïonnette tel que les fiches ou socles de connecteurs IP66/IP67 et IP67, conformes aux feuilles de normes 2-IV et 2-IVa et munis d'une bague à baïonnette ayant les dimensions maximales, puissent être correctement introduits sous un angle de (30 ± 3)° et tournés de 120° maximum.

Les dessins ne préjugent pas les détails non cotés.

The retaining means shall be in the form of bayonet ramps such that IP66/IP67 and IP67 plugs or appliance inlets complying with standard sheets 2-IV and 2-IVa, and provided with a bayonet ring having maximum dimensions, can be correctly introduced at an angle of (30 ± 3)° and rotated up to a maximum of 120°.

The sketches are not intended to govern design except as regards the dimensions shown.

FEUILLE DE NORMES 2-IV

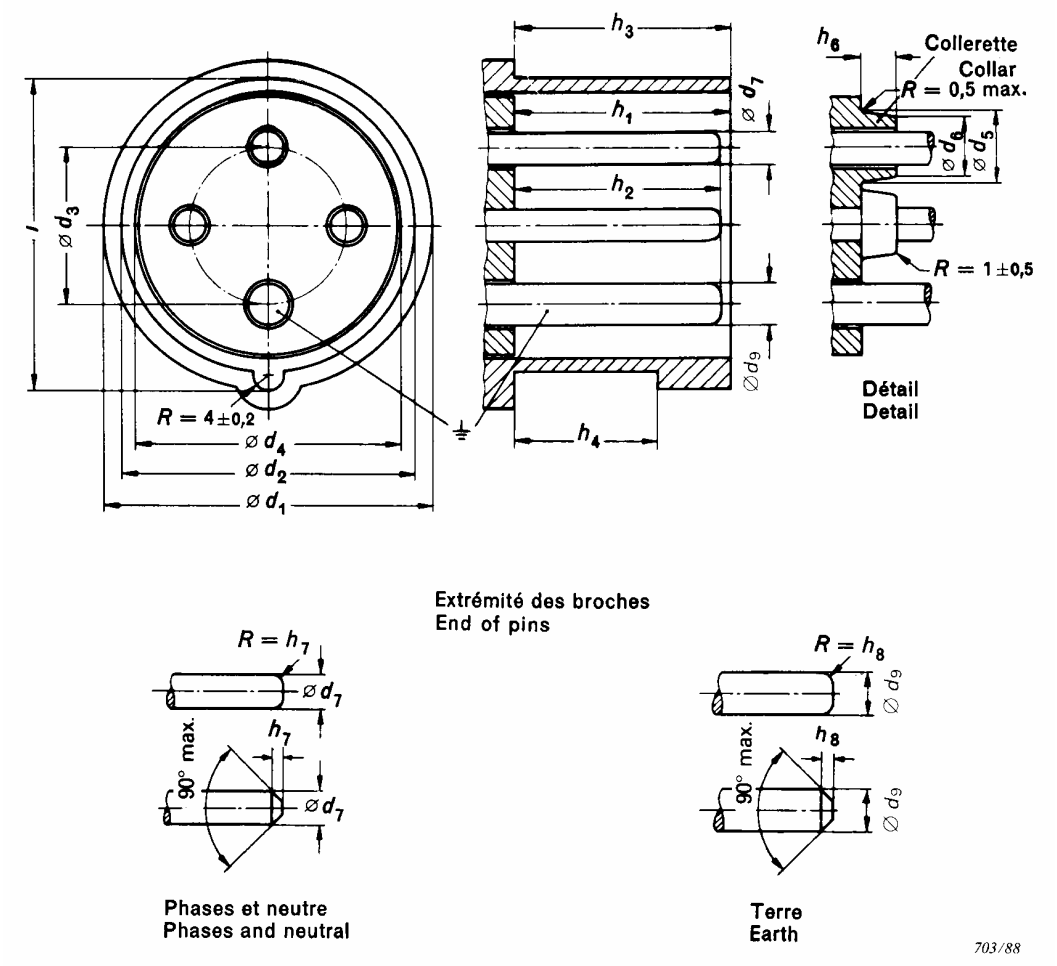
FICHES ET SOCLES DE CONNECTEURS 63/60 A ET 125/100 A, DE TENSION NOMINALE DÉPASSANT 50 V

SANS BROCHE PILOTE

STANDARD SHEET 2-IV

63/60 A AND 125/100 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

WITHOUT PILOT PIN

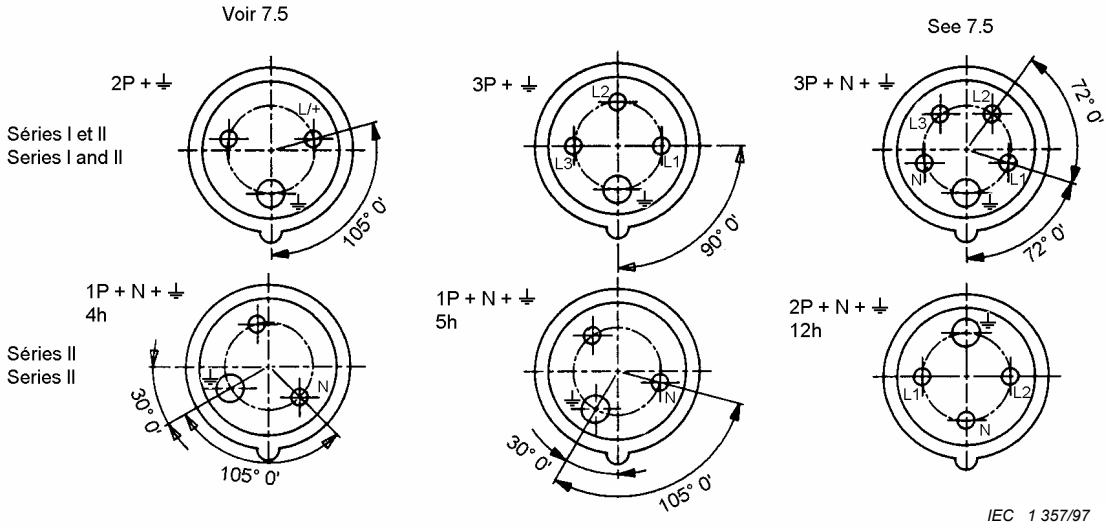


DISPOSITION DES BROCHES

Vue de face des broches de la fiche ou du socle de connecteur

ARRANGEMENT OF PINS

Front view of pins of plug or appliance inlet



FEUILLE DE NORMES 2-IVa

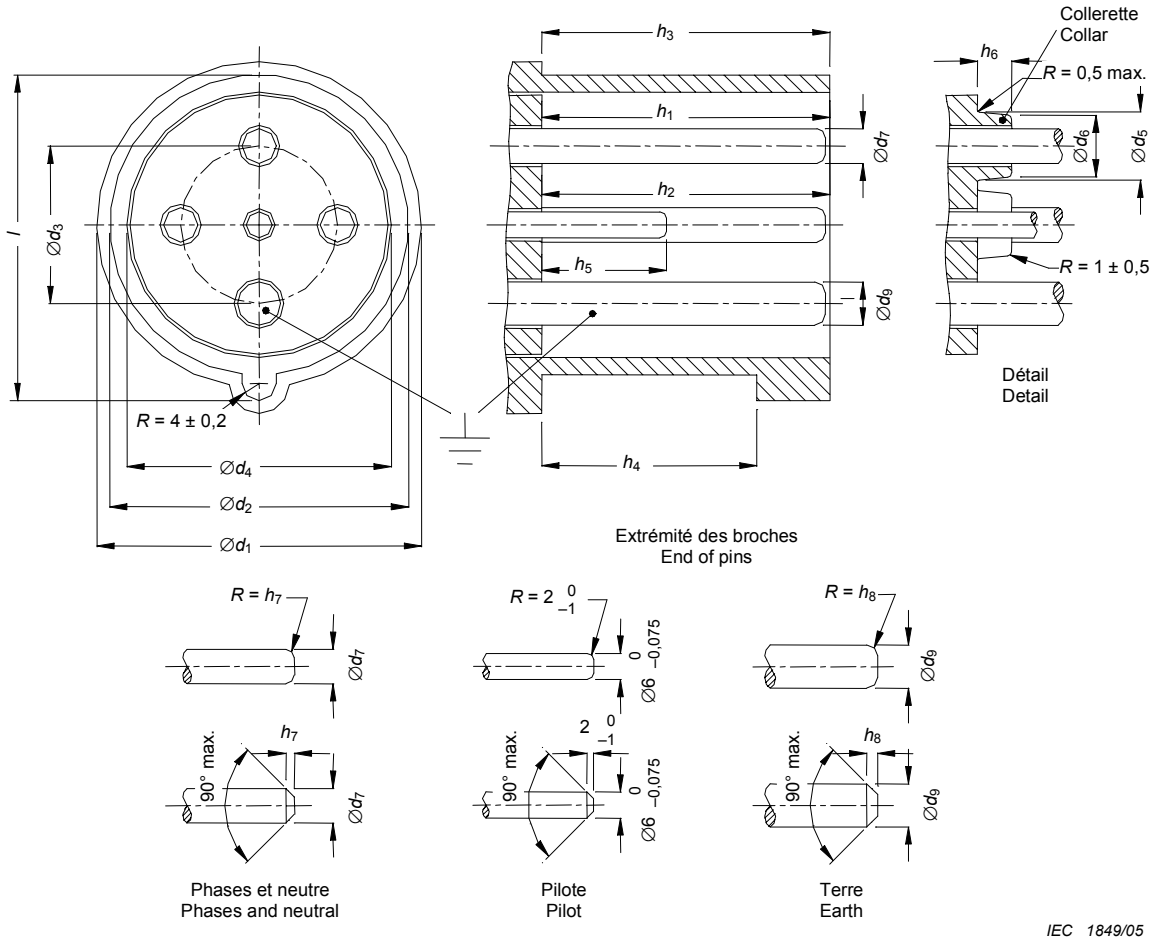
FICHES ET SOCLES DE CONNECTEURS 63/60 A ET 125/100 A, DE TENSION NOMINALE DÉPASSANT 50 V

AVEC BROCHE PILOTE

STANDARD SHEET 2-IVa

63/60 A AND 125/100 A PLUG AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

WITH PILOT PIN

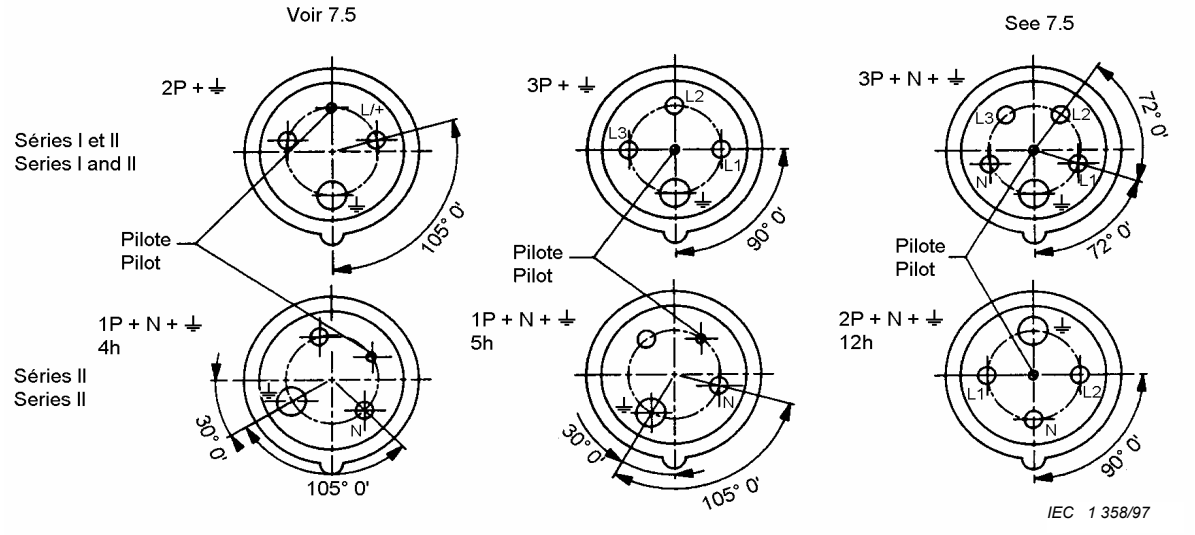


DISPOSITION DES BROCHES

Vue de face des broches de la fiche ou du socle de connecteur

ARRANGEMENT OF PINS

Front view of pins of plug or appliance inlet



Dimensions pour les feuilles de normes 2-IV et 2-IVa *Dimensions for standard sheets 2-IV and 2-IVa*

Type	Courant nominal / Rated current	d_1	d_2	d_3	d_4		1) d_5	1) d_6	d_7	d_9	h_1	h_2	h_3	h_4	h_5	1) h_6	2) h_7		2) h_8		l
	A	min.	0 –0,8	±0,5		Tol.	max.	max.	0 –0,09	0 –0,11	0 –1,0	0 –1,0	0 –1,0	+2 0	0 –1,0	max.	max.	min.	max.	min.	0 –0,6
2P + ⏚ 3P + ⏚	63/60	75,5	69,5	36,5	61,5	+2 0	15,8	14,3	8	10	67,0	66,0	67,0	50	29,0	8	2,5	1,2	3,0	1,5	75,5
3P + N + ⏚	125/100	87,5	81,5	42,5	72,5	+2,5 0	20,2	18,2	10	12	74,5	69,5	75,5	58	31,5	10	3,0	1,5	4,0	2,0	87,5

Dimensions en millimètres *Dimensions in millimetres*

1) Collerettes, conformes à la vue de détail, prescrites pour les appareils de tension nominale d'emploi dépassant 500 V, facultatives pour les autres appareils.

2) L'extrémité des broches peut être arrondie vers la surface cylindrique extérieure dans les limites de 1 fois ½ la valeur h_7 max. ou h_8 max.

1) Collars, as shown in the detail, required for accessories having rated operating voltages exceeding 500 V, optional for other accessories.

2) The end of the pins may be rounded off towards the external cylindrical surface within a distance of 1½ times the value h_7 max. or h_8 max.

FEUILLE DE NORMES 2-IV
(suite 1)

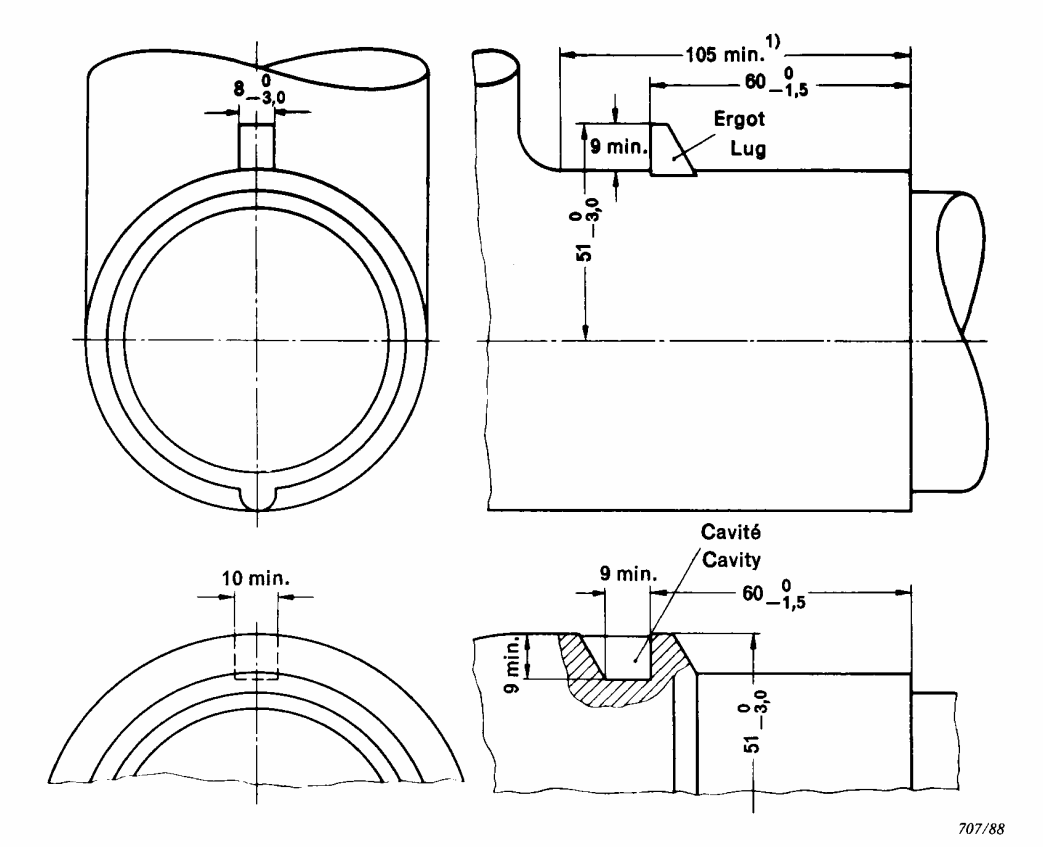
DISPOSITIFS DE RETENUE POUR LES FICHES ET SOCLES DE CONNECTEURS 63/60 A IP44

TOUS TYPES

STANDARD SHEET 2-IV
(continuation 1)

RETAINING MEANS FOR 63/60 A IP44 PLUGS AND APPLIANCE INLETS

ALL TYPES



Dimensions en millimètres

Dimensions in millimetres

1) Espace libre minimal nécessaire pour le débattement du couvercle articulé.

Le dispositif de retenue doit être en forme d'ergot ou de cavité, situés sur la position 12 h.

1) Minimum clearance required for movement of hinged lid.

The retaining means must be in the form of a lug or a cavity, at position 12 h.

FEUILLE DE NORMES 2-IV
(suite 2)

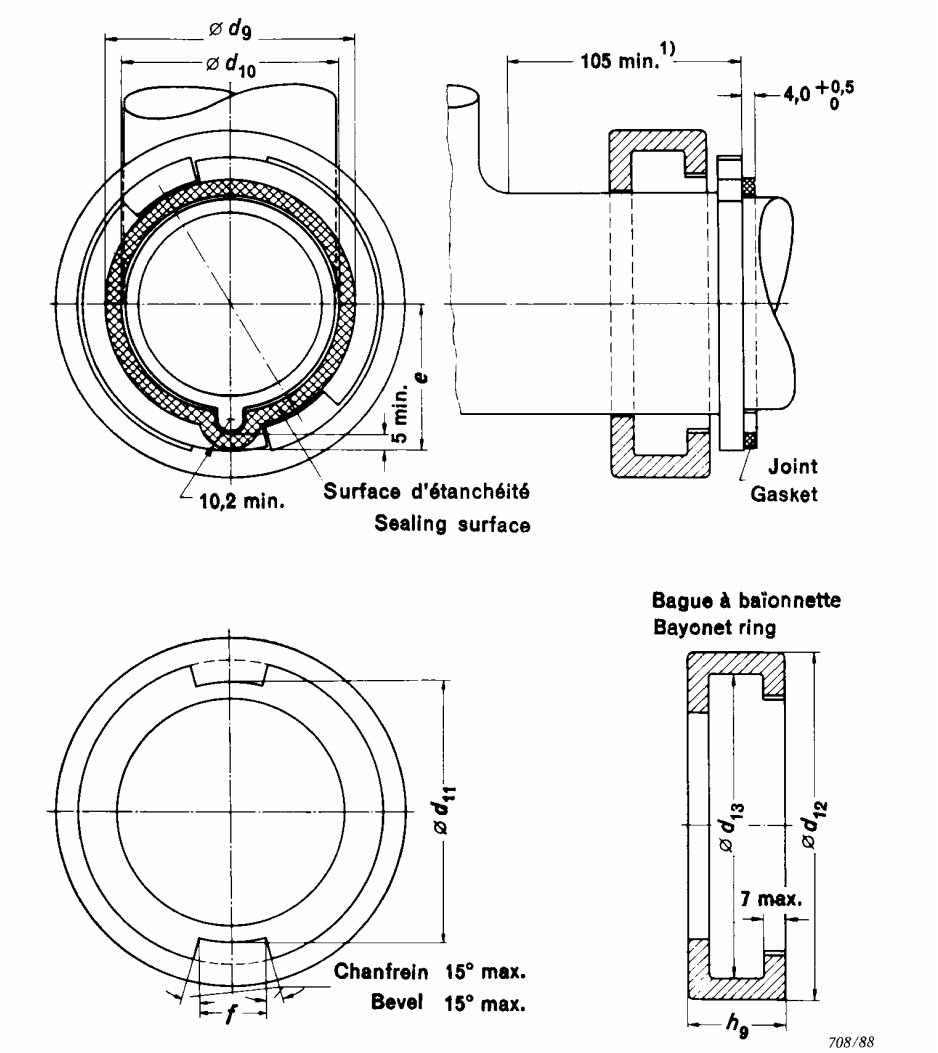
DISPOSITIFS DE RETENUE POUR LES FICHES ET SOCLES DE CONNECTEURS 63/60 A ET 125/100 A IP66/IP67 et IP67

TOUS TYPES

STANDARD SHEET 2-IV
(continuation 2)

RETAINING MEANS FOR 63/60 A AND 125/100 A IP66/IP67 AND IP67 PLUGS AND APPLIANCE INLETS

ALL TYPES



Dimensions pour la feuille de normes 2-IV (suite 2)

Dimensions for standard sheet 2-IV (continuation 2)

Type	Courant nominal / Rated current A	Surface d'étanchéité / Sealing surface			Bague à baïonnette / Bayonet ring				
		d_9 min.	d_{10} max.	e min.	d_{11} $^{+0,6}_{-0,4}$	d_{12} max.	d_{13} min.	f $^{0}_{-0,5}$	h_9 max.
2P + ⏚ 3P + ⏚ 3P + N + ⏚	63/60	81,5	71,5	46,8	86,0	114	98	22	32
	125/100	93,5	83,5	53,3	99,0	131	111	27	35

Dimensions en millimètres

Dimensions in millimetres

1) Espace libre minimal nécessaire pour le débattement du couvercle à charnière; applicable seulement aux appareils 63/60 A.

Le dispositif de retenue doit être en forme de bague à baïonnette.

Les dessins ne préjugent pas les détails non cotés.

1) Minimum clearance required for movement of hinged lid; applicable only to 63/60 A accessories.

The retaining means must be in the form of a bayonet ring.

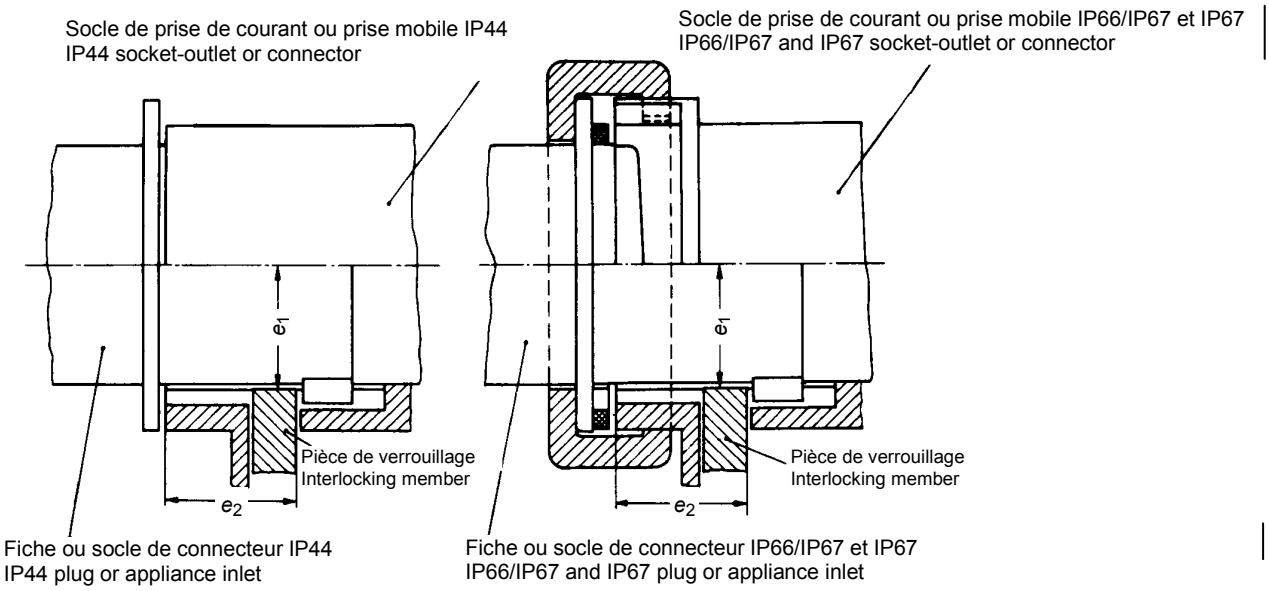
The sketches are not intended to govern design except as regards the dimensions shown.

FEUILLE DE NORMES 2-V

VERROUILLAGE MÉCANIQUE DES APPAREILS 16/20 A, 32/30 A, 63/60 A ET 125/100 A DE TENSION NOMINALE D'EMPLOI DÉPASSANT 50 V

STANDARD SHEET 2-V

MECHANICAL INTERLOCK FOR 16/20 A, 32/30 A, 63/60 A AND 125/100 A ACCESSORIES HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V



IEC 2477/05

Dimensions pour la feuille de norme 2-V — *Dimensions for standard sheet 2-V*

Courant nominal Rated current A	**Type**	e_1		e_2	
			Tol.		Tol.
16/20	2P + ⏚	22,0	$^{+0,5}_{0}$	23,5	$^{0}_{-0,3}$
	3P + ⏚	25,0	$^{+0,5}_{0}$	23,5	$^{0}_{-0,3}$
	3P + N + ⏚	28,3	$^{+0,5}_{0}$	23,5	$^{0}_{-0,3}$
32/30	2P + ⏚	29,0	$^{+0,7}_{0}$	31,5	$^{0}_{-0,5}$
	3P + ⏚	29,0	$^{+0,7}_{0}$	31,5	$^{0}_{-0,5}$
	3P + N + ⏚	32,1	$^{+0,7}_{0}$	31,5	$^{0}_{-0,5}$
63/60	Tous les types All types	35	$^{+1}_{0}$	45	$^{0}_{-1}$
125/100	Tous les types All types	41	$^{+1}_{0}$	53	$^{0}_{-1}$

Dimensions en millimètres — *Dimensions in millimetres*

Les dessins ne préjugent pas les détails non cotés, excepté en ce qui concerne les dimensions indiqués.

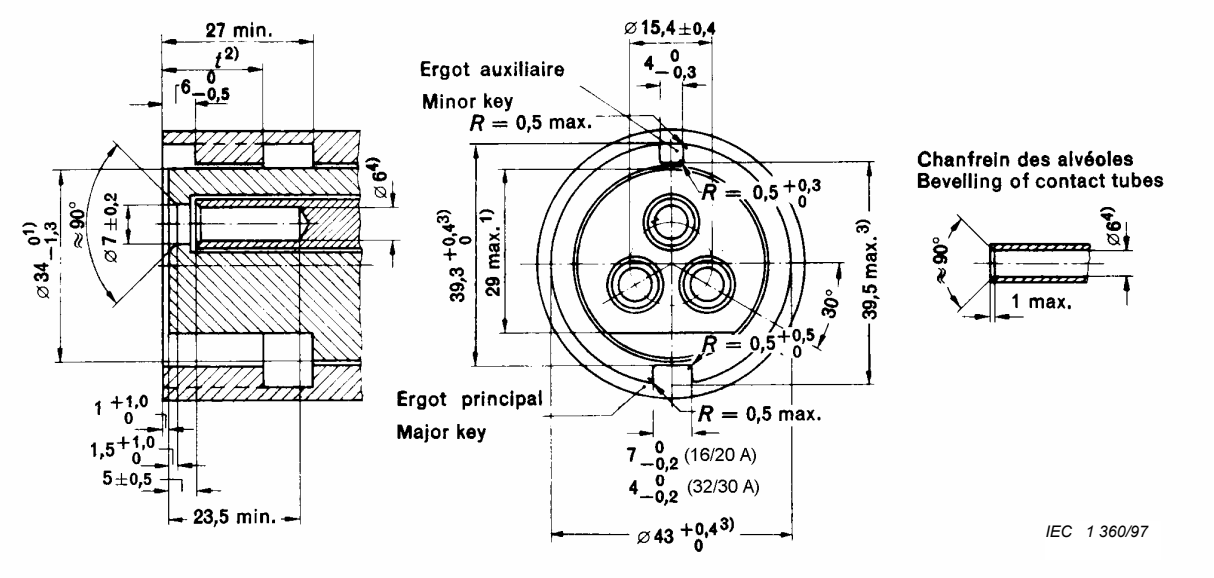
The sketches are not intended to govern design except as regards the dimensions shown.

FEUILLE DE NORMES 2-VIII

SOCLES DE PRISES DE COURANT ET PRISES MOBILES 16/20 A ET 32/30 A DE TENSION NOMINALE D'EMPLOI NE DÉPASSANT PAS 50 V

STANDARD SHEET 2-VIII

16/20 A AND 32/30 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V

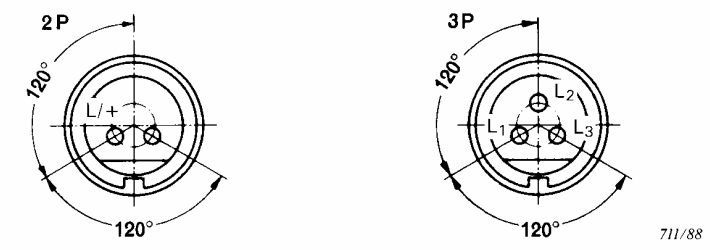


DISPOSITION DES ALVÉOLES

Vue de face des alvéoles du socle de prise de courant ou de la prise mobile

ARRANGEMENT OF CONTACT TUBES

Front view of contact tubes of socket-outlet or connector



Dimensions en millimètres

Dimensions in millimetres

1) Ces dimensions doivent rester dans les limites prescrites sur une profondeur de 27 mm.

2) La dimension *t* est de 10 mm pour un ergot auxiliaire en métal et de 18 mm pour un ergot auxiliaire en matériau isolant.

3) Ces dimensions doivent rester dans les limites prescrites sur la profondeur *t*. Au-delà, elles peuvent être plus grandes mais pas plus petites.

4) Cette dimension se rapporte aux broches; il n'est pas nécessaire que les alvéoles soient circulaires.

1) These dimensions shall be within the prescribed limits over a distance of 27 mm.

2) The dimension *t* is 10 mm for a minor key of metal and 18 mm for a minor key of insulating material.

3) These dimensions shall be within the prescribed limits over the distance *t*. Beyond this, they may be larger but not smaller.

4) This dimension refers to the pins; the contact tubes need not be circular.

FEUILLE DE NORMES 2-VIII
(suite 1)

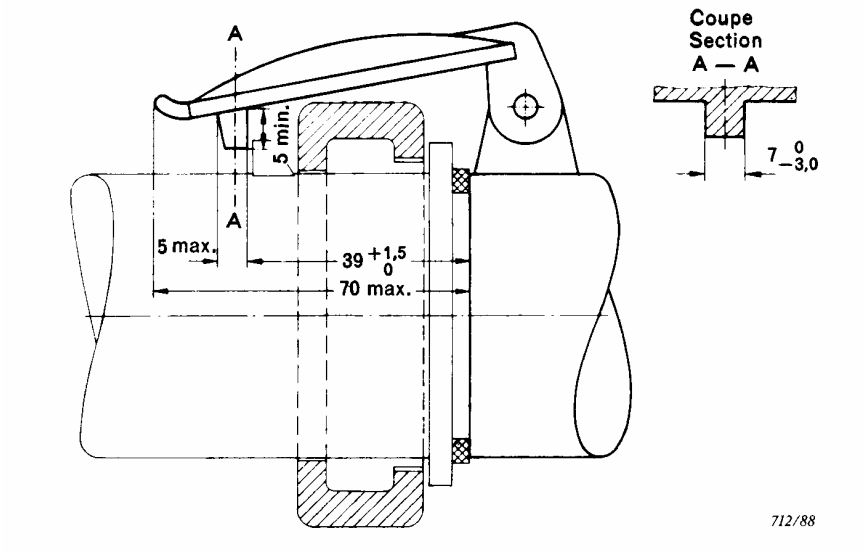
DISPOSITIFS DE RETENUE POUR LES SOCLES DE PRISES DE COURANT ET PRISES MOBILES IP44

STANDARD SHEET 2-VIII
(continuation 1)

RETAINING MEANS FOR IP44 SOCKET-OUTLETS AND CONNECTORS

Couvercle ou levier représenté dans la position de blocage

Lid or lever shown in latched position



Dimensions en millimètres Dimensions in millimetres

Pour les appareils IP44, le dispositif de retenue doit être en forme de couvercle tel que les fiches ou socles de connecteurs IP66/IP67 et IP67, conformes à la feuille de normes 2-IX et munis d'une bague à baïonnette ayant les dimensions maximales, puissent être correctement introduits et retenus.

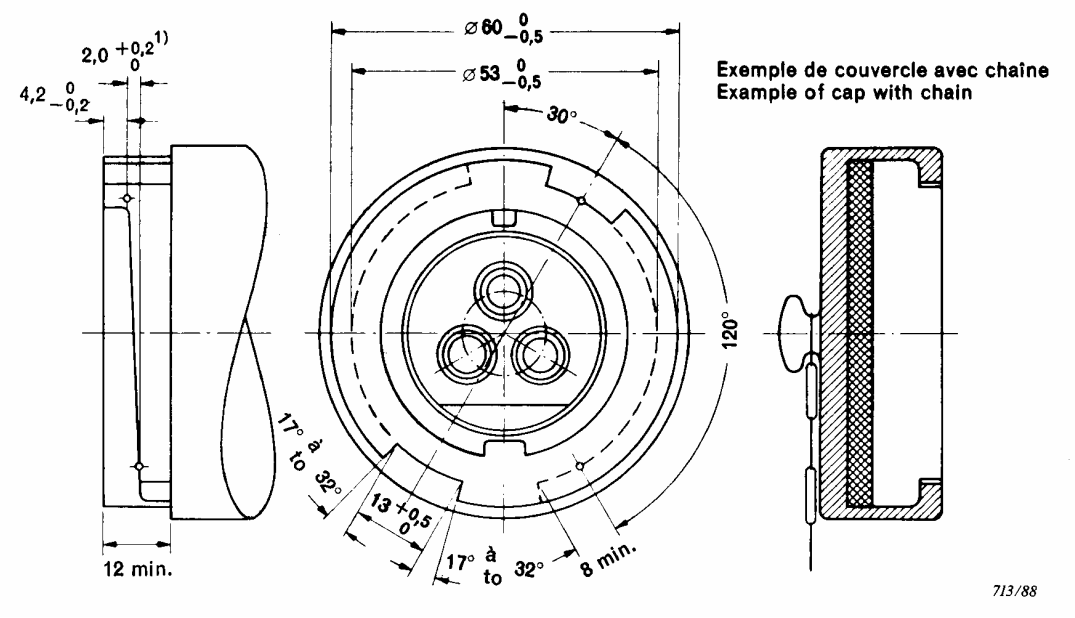
For IP44 accessories, the retaining means must be in the form of a lid such that IP66/IP67 and IP67 plugs or appliance inlets complying with standard sheet 2-IX and provided with a bayonet ring having maximum dimensions can be correctly introduced and retained.

FEUILLE DE NORMES 2-VIII
(suite 2)

DISPOSITIFS DE RETENUE POUR LES SOCLES DE PRISES DE COURANT ET PRISES MOBILES IP66/IP67 ET IP67

STANDARD SHEET 2-VIII
(continuation 2)

RETAINING MEANS FOR IP66/IP67 AND IP67 SOCKET-OUTLETS AND CONNECTORS



Dimensions en millimètres

Dimensions in millimetres

1) La pente des rampes doit être telle que cette dimension se rapporte à l'angle de 120° indiqué.

1) The indication of the ramps shall be such that this dimension refers to the angle of 120° shown.

Le dispositif de retenue doit être en forme de rampes à baïonnette.

The retaining means shall be in the form of bayonet ramps.

Les dessins ne préjugent pas les détails non cotés.

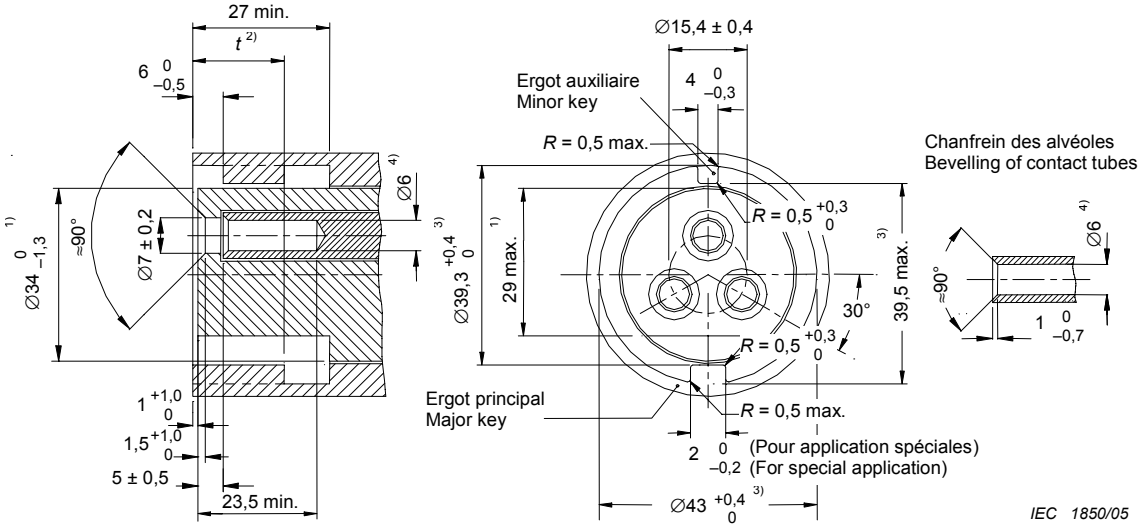
The sketches are not intended to govern design except as regards the dimensions shown.

FEUILLE DE NORME 2-VIIIa

SOCLES DE PRISES DE COURANT ET PRISES MOBILES DE TENSION NOMINALE D'EMPLOI NE DÉPASSANT PAS 50 V

STANDARD SHEET 2-VIIIa

SPECIAL APPLICATION SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V

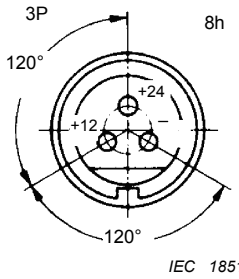


DISPOSITION DES ALVÉOLES

Vue de face des alvéoles du socle de prise de courant ou de la prise mobile

ARRANGEMENT OF CONTACT TUBES

Front view of contact tubes of socket-outlet or connector



Dimensions en millimètres

Dimensions in millimetres

1) Ces dimensions doivent rester dans les limites prescrites sur une profondeur de 27 mm.

2) La dimension *t* est de 10 mm pour un ergot auxiliaire en métal et de 18 mm pour un ergot auxiliaire en matériau isolant.

3) Ces dimensions doivent rester dans les limites prescrites sur la profondeur *t*. Au-delà, elles peuvent être plus grandes mais pas plus petites.

4) Cette dimension se rapporte aux broches; il n'est pas nécessaire que les alvéoles soient circulaires.

1) These dimensions shall be within the prescribed limits over a distance of 27 mm.

2) The dimension *t* is 10 mm for a minor key of metal and 18 mm for a minor key of insulating material.

3) These dimensions shall be within the prescribed limits over the distance *t*. Beyond this, they may be larger but not smaller.

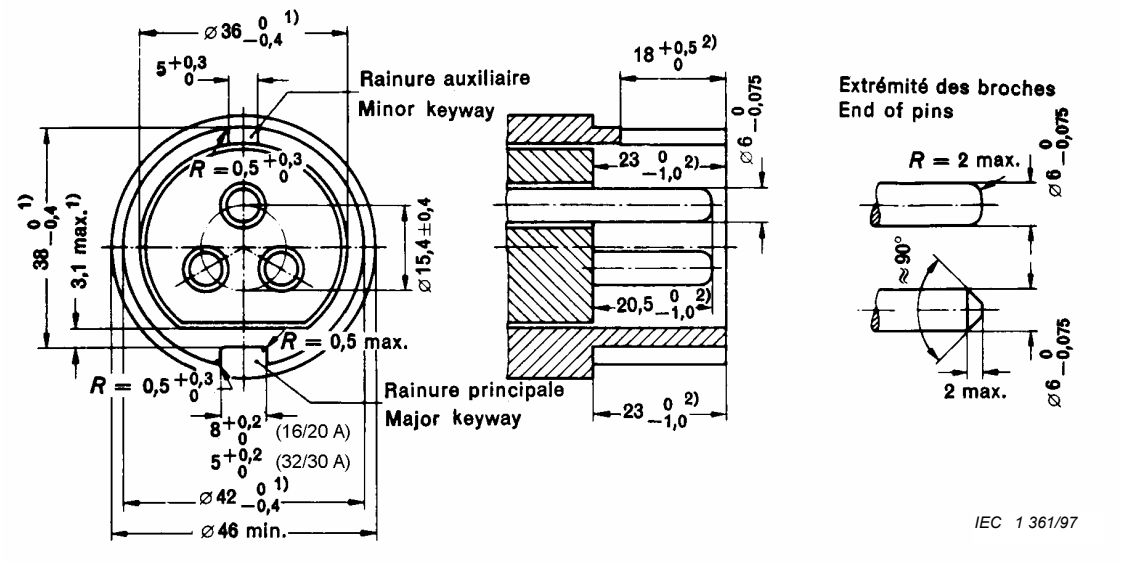
4) This dimension refers to the pins; the contact tubes need not be circular.

FEUILLE DE NORMES 2-IX

FICHES ET SOCLES DE CONNECTEURS 16/20 A ET 32/30 A DE TENSION NOMINALE D'EMPLOI NE DÉPASSANT PAS 50 V

STANDARD SHEET 2-IX

16/20 A AND 32/30 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V

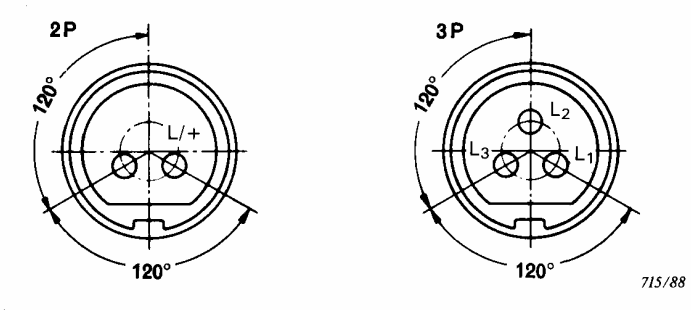


DISPOSITION DES BROCHES

Vue de face des broches de la fiche ou du socle de connecteur

ARRANGEMENT OF PINS

Front view of pins of plug or appliance inlet



Dimensions en millimètres

Dimensions in millimetres

1) Ces dimensions doivent rester dans les limites prescrites sur une profondeur de:

26 mm pour les appareils IP66/IP67 et IP67,

23 mm pour les autres appareils.

2) Pour les appareils IP66/IP67 et IP67, ces dimensions sont augmentées de 3,0 mm.

1) These dimensions shall be within the prescribed limits over a distance of:

26 mm for IP66/IP67 and IP67 accessories,

23 mm for other accessories.

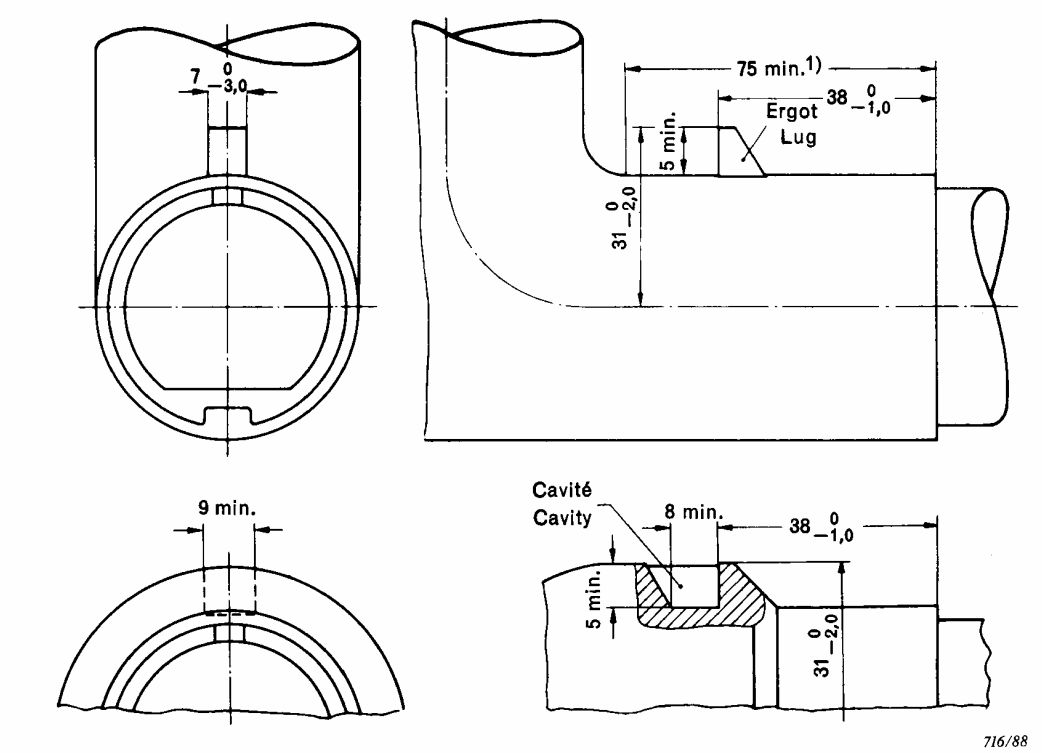
2) For IP66/IP67 and IP67 accessories, these dimensions are increased by 3,0 mm.

FEUILLE DE NORMES 2-IX
(suite 1)

DISPOSITIFS DE RETENUE POUR LES FICHES ET SOCLES DE PRISES DE CONNECTEURS IP44

STANDARD SHEET 2-IX
(continuation 1)

RETAINING MEANS FOR IP44 PLUGS AND APPLIANCE INLETS



Dimensions en millimètres

Dimensions in millimetres

1) Espace libre minimal nécessaire pour le débattement du couvercle à charnière.

1) Minimum clearance required for movement of hinged lid.

Le dispositif de retenue doit être en forme d'ergot ou de cavité, situés sur la position 12 h.

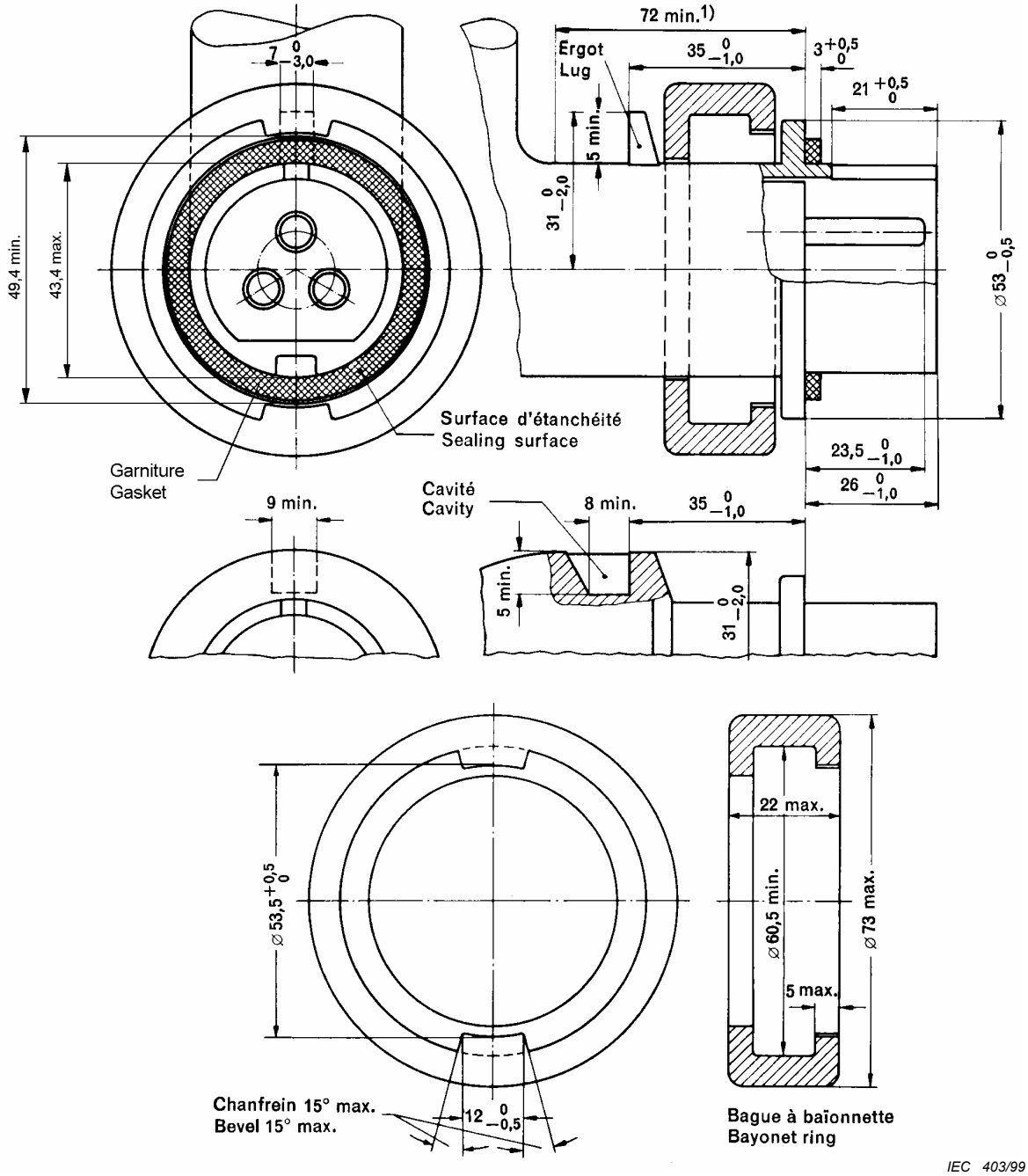
The retaining means shall be in the form of a lug or a cavity, at position 12 h.

FEUILLE DE NORMES 2-IX
(suite 2)

DISPOSITIFS DE RETENUE POUR LES FICHES ET SOCLES DE CONNECTEURS IP66/IP67 ET IP67

STANDARD SHEET 2-IX
(continuation 2)

RETAINING MEANS FOR IP66/IP67 AND IP67 PLUGS AND APPLIANCE INLETS



Dimensions en millimètres

Dimensions in millimetres

1) Espace libre minimal nécessaire pour le débattement du couvercle à charnière.

Les dispositifs de retenue doivent être en forme de bague à baïonnette et d'ergot ou de cavité, situés sur la position 12 h.

Les dessins ne préjugent pas les détails non cotés.

1) Minimum clearance required for movement of hinged lid.

The retaining means shall be in the form of a bayonet ring and a lug or a cavity, at position 12 h.

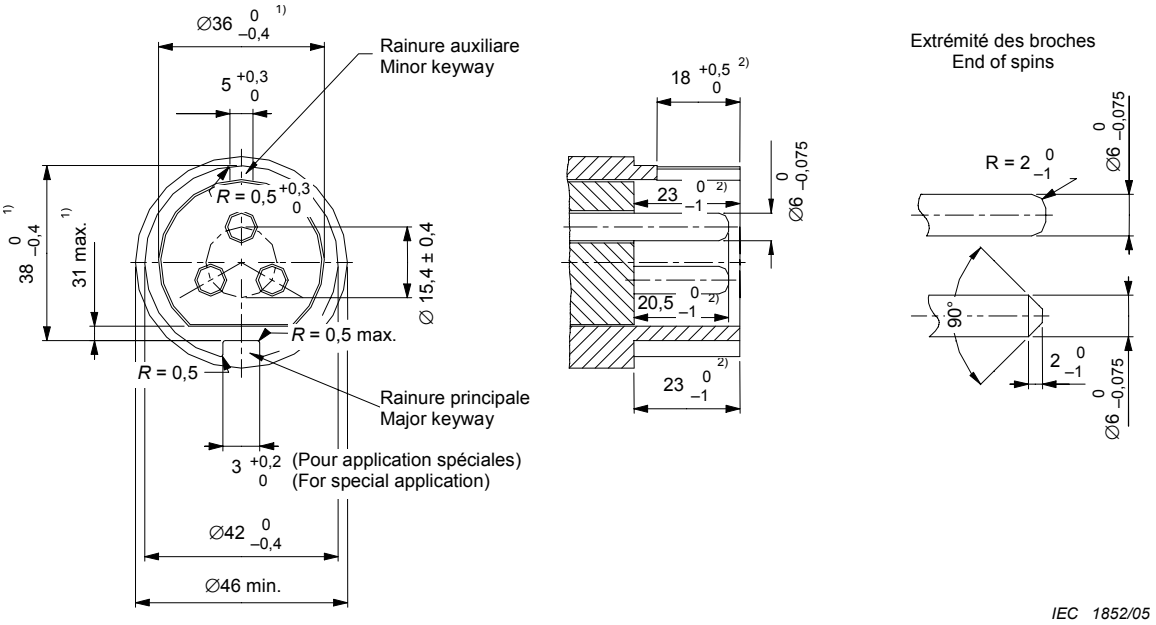
The sketches are not intended to govern design except as regards the dimensions shown

FEUILLE DE NORME 2-IXa

FICHES ET SOCLES DE CONNECTEURS DE TENSION NOMINALE D'EMPLOI NE DÉPASSANT PAS 50 V

STANDARD SHEET 2-IXa

PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V

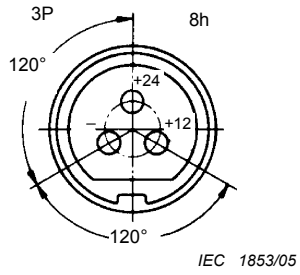


DISPOSITION DES BROCHES

Vue de face des broches de la fiche ou du socle de connecteur

ARRANGEMENT OF PINS

Front view of pins of plug or appliance inlet



Dimensions en millimètres

1) Ces dimensions doivent rester dans les limites prescrites sur une profondeur de:

26 mm pour les appareils IP 66/67 et IP67,

23 mm pour les autres appareils.

2) Pour les appareils IP 66/67 et IP67, ces dimensions sont augmentées de 3,0 mm.

Dimensions in millimetres

1) These dimensions shall be within the prescribed limits over a distance of:

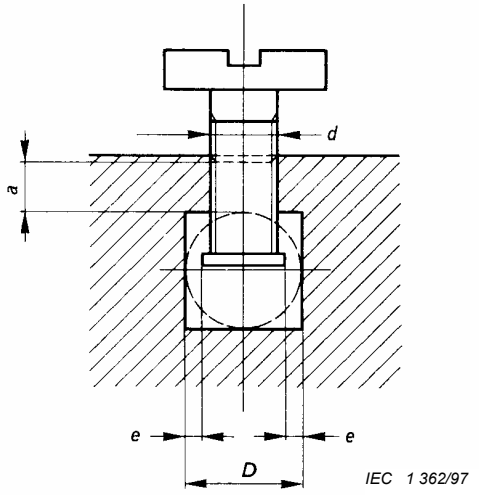
26 mm for IP 66/67 and IP67 accessories,

23 mm for other accessories.

2) For IP 66/67 and IP67 accessories, these dimensions are increased by 3,0 mm.

FEUILLE DE NORMES 2-X

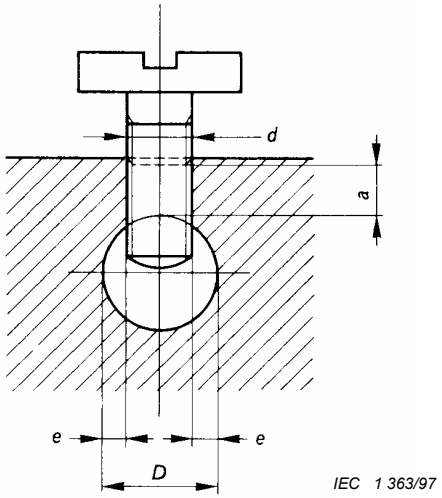
BORNES À TROU



Borne avec plaquette
Terminal with pressure plate

STANDARD SHEET 2-X

PILLAR TERMINALS



Borne sans plaquette
Terminal without pressure plate

Numéro de la borne **Terminal size**	**Diamètre minimal du logement du conducteur** **Minimum diameter of conductor space** *D*	**Diamètre nominal minimal de la partie filetée** **Minimum nominal thread diameter** *d*		**Interstice maximal entre les parties emprisonnant le conducteur** **Maximum gap between conductor restraining parts** *e*	**Longueur minimale de la partie taraudée dans la borne** **Minimum length of thread in terminal** *a*		**Distance minimale entre la vis de serrage et l'extrémité du conducteur poussé à fond** **Minimum distance between clamping screw and end of conductor when fully inserted**	
		Une vis **One screw**	**Deux vis** **Two screws**		**Une vis** **One screw**	**Deux vis** **Two screws**	**Une vis** **One screw**	**Deux vis** **Two screws**
2	3,0	3,0[1)]	2,5	0,5	2,0	1,8	1,5	1,5
3	3,6	3,5	2,5[2)]	0,5	2,5	1,8	1,8	1,5
4	4,0	3,5	3,0[1)]	0,6	2,5	2,0	1,8	1,5
5	4,5	4,0	3,0[1)]	1,0	3,0	2,0	2,0	1,5
6	5,5	5,0	4,0	1,3	4,0	3,0	2,5	2,0
7	7,0	6,0	4,0	1,5	4,0	3,0	3,0	2,0
8	10,0	–	6,0	–	–	4,0	–	3,0
9	13,0	–	10,0	–	–	7,5	–	[3)]
10	16,0	–	[3)]	–	–	[3)]	–	[3)]

Dimensions en millimètres *Dimensions in millimetres*

[1)] Dans le cas des filetages BA, cette valeur est réduite à 2,8.

[2)] Lorsque la partie filetée des vis a un diamètre nominal de 2,5 mm, il est nécessaire d'employer une plaquette pour être sûr que l'interstice entre les parties emprisonnant le conducteur ne dépasse pas la valeur prescrite.

[3)] Ces valeurs sont à l'étude.

[1)] For BA threads, this value is reduced to 2,8.

[2)] If the screws have a nominal thread diameter of 2,5 mm, it is necessary to use a pressure plate to ensure that the gap between conductor restraining parts does not exceed the prescribed value.

[3)] These values are under consideration.

Pour les vis avec tête, la longueur de la partie filetée de la vis doit être au moins égale à la somme du diamètre du logement du conducteur et de la longueur réelle de la partie taraudée dans la borne. Pour les autres vis, la longueur de la partie filetée doit être au moins égale à la somme du diamètre du logement du conducteur et de la longueur minimale spécifiée pour la partie taraudée dans la borne.

La partie de la borne portant le trou taraudé et la partie de la borne contre laquelle le conducteur est serré par la vis peuvent être deux parties distinctes, par exemple dans le cas d'une borne à étrier.

La forme du logement du conducteur peut différer de celles qui sont représentées sur les figures, pourvu qu'on puisse y inscrire un cercle de diamètre égal à la valeur minimale spécifiée pour *D*.

La longueur de la partie taraudée dans la borne est mesurée à partir du point d'intersection du filet et du trou pour le conducteur.

La distance minimale entre la vis de serrage et l'extrémité du conducteur poussé à fond s'applique uniquement aux bornes hors desquelles le conducteur ne peut pas déboucher.

Les dessins ne préjugent pas les détails non cotés.

For headed screws, the length of thread on the screw shall not be less than the sum of the diameter of the conductor space and the actual length of thread in the terminal. For other screws, the length of thread shall not be less than the sum of the diameter of the conductor space and the specified minimum length of thread in the terminal.

The part of the terminal containing the threaded hole and the part of the terminal against which the conductor is clamped by the screw may be two separate parts, as in the case of terminals provided with a stirrup.

The shape of the conductor space may differ from those shown in the figures, provided a circle with a diameter equal to the minimum value specified for *D* can be inscribed.

The length of thread in the terminal is measured from the point where the thread is first broken by the hole for the conductor.

The minimum distance between the clamping screw and the end of the conductor when fully inserted applies only to terminals in which the conductor cannot pass right through.

The sketches are not intended to govern design except as regards the dimensions shown.

FEUILLE DE NORMES 2-XI

BORNES À SERRAGE SOUS TÊTE DE VIS ET BORNES À GOUJON FILETÉ

STANDARD SHEET 2-XI

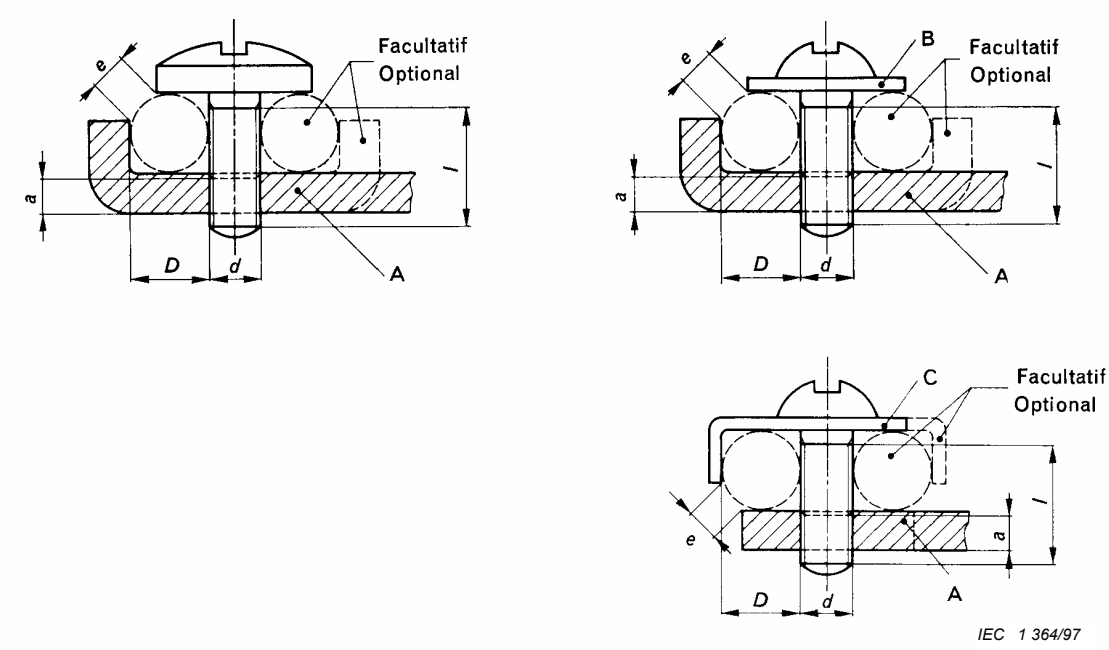
SCREW TERMINALS AND STUD TERMINALS

Vis ne nécessitant pas de rondelle ou plaquette

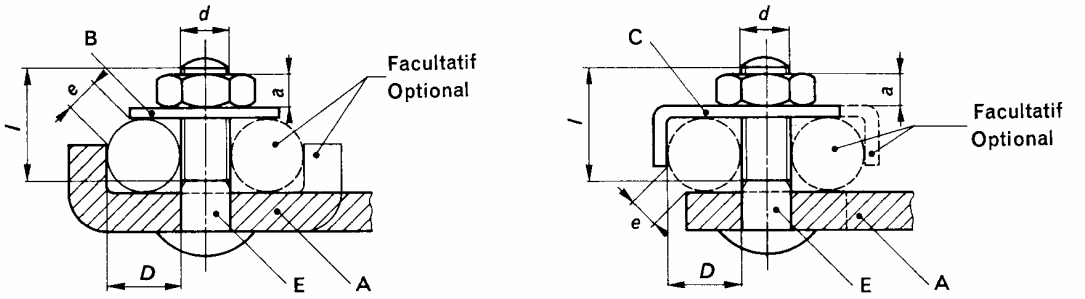
Screw not requiring washer or clamping plate

Vis nécessitant une rondelle ou plaquette

Screw requiring washer or clamping plate



Bornes à serrage sous tête de vis
Screw terminals



Bornes à goujon fileté
Stud terminals

A Partie fixe.

B Rondelle ou plaquette.

C Dispositif empêchant le conducteur ou ses brins de s'échapper.

E Goujon.

A Fixed part.

B Washer or clamping plate.

C Anti-spread device.

E Stud.

Numéro de la borne Terminal size	Diamètre minimal du logement du conducteur Minimum diameter of conductor space	Diamètre nominal minimal de la partie filetée Minimum nominal thread diameter		Interstice maximal entre les parties emprisonnant le conducteur Maximum gap between conductor restraining parts	Longueur minimale de la partie fixe ou l'ecrou Minimum length of thread in fixed part or nut		Longueur minimale de la partie filetée de la vis ou du goujon Minimum length of thread on screw or stud
		d			*a*		
	D	Une vis One screw	Deux vis Two screws	*e*	Une vis One screw	Deux vis Two screws	*l*
2	2,0	3,5	–	1,5	1,5	–	4,0
3	2,7	4,0	3,0[1]	2,5	1,5	1,5	5,5
4	3,6	5,0	4,0	1,5	3,0	2,5	6,5
5	4,3	5,0	4,0	2,0	3,0	2,5	7,5
6	5,5	5,0	4,0	2,0	3,5	2,5	9,0
7	7,0	6,0	5,0	2,0	3,5	3,0	10,5
8	8,0	6,0	5,0	2,0	4,0	3,0	12,0
9	[2]	8,0	[2]	[2]	5,5	[2]	14,0
10	[2]	10,0	[2]	[2]	7,0	[2]	16,0

Dimensions en millimètres

Dimensions in millimetres

[1] Dans le cas des filetages BA, cette valeur est réduite à 2,8.

[2] Ces valeurs sont à l'étude.

[1] For BA threads, this value is reduced to 2,8.

[2] These values are under consideration.

Un organe intermédiaire, tel qu'une rondelle, une plaquette ou un dispositif empêchant le conducteur ou ses brins de s'échapper, est nécessaire sur toutes les bornes à goujon fileté, à moins que la base de l'écrou ne soit elle-même circulaire. Un tel organe intermédiaire est nécessaire pour les bornes à serrage sous tête de vis, si la tête de vis est de diamètre insuffisant pour satisfaire à la prescription concernant l'interstice entre les parties emprisonnant le conducteur.

An intermediate part, such as a washer, clamping plate or anti-spread device, is necessary on all stud terminals, unless the base of the nut is itself round. Such an intermediate part is necessary on screw terminals, if the head of the screw is of insufficient diameter to meet the requirement regarding the gap between conductor restraining parts.

Si un organe intermédiaire est interposé entre la tête de la vis ou l'écrou et le conducteur, la valeur minimale de la longueur de la partie filetée de la vis ou du goujon est augmentée de l'épaisseur de l'organe intermédiaire.

If an intermediate part is used between the head of the screw or the nut and the conductor, the minimum value for the length of the thread on the screw or stud is increased by the thickness of the intermediate part.

La partie maintenant le conducteur en place, par rapport à laquelle la dimension *e* est mesurée, peut être en matériau isolant, pourvu que la pression nécessaire pour le serrage du conducteur ne se transmette pas par l'intermédiaire du matériau isolant.

The part which retains the conductor in position, to which the dimension *e* is measured, may be of insulating material, provided that the pressure necessary to clamp the conductor is not transmitted through the insulating material.

Les dessins ne préjugent pas les détails non cotés.

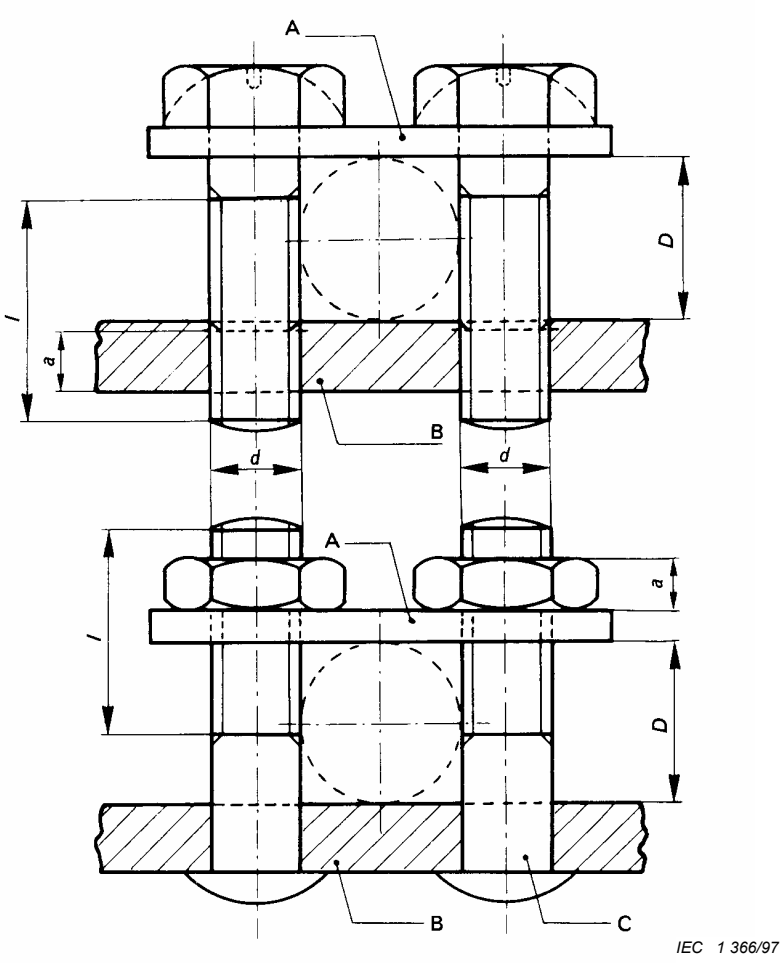
The sketches are not intended to govern design except as regards the dimensions shown.

FEUILLE DE NORMES 2-XII

BORNES À PLAQUETTE

STANDARD SHEET 2-XII

SADDLE TERMINALS



A Plaquette.
B Partie fixe.
C Goujon.

A Saddle.
B Fixed part.
C Stud.

Numéro de la borne Terminal size	Diamètre minimal du logement du conducteur Minimum diameter of conductor space *D*	Diamètre nominal minimal de la partie filetée Minimum nominal thread diameter *d*	Longueur minimale de la partie taraudée dans la partie fixe ou l'écrou Minimum length of thread in fixed part or nut *a*	Longueur minimale de la partie filetée des vis ou des goujons Minimum length of thread on screws or studs *l*
3	3,0	3,0[1)]	1,5	5,0
4	4,0	3,5	1,5	6,0
5	4,5	4,0	2,5	7,0
6	5,5	4,0	2,5	8,0
7	7,0	5,0	3,0	10,0

Dimensions en millimètres *Dimensions in millimetres*

1) Dans le cas des filetages BA, cette valeur est réduite à 2,8.

1) For BA threads, this value is reduced to 2,8.

La forme de la section droite du logement du conducteur peut différer de celle qui est représentée sur les figures, pourvu qu'on puisse y inscrire un cercle de diamètre égal à la valeur minimale spécifiée pour *D*.

Les deux faces de la plaquette peuvent avoir une forme différente, pour adapter la borne tant aux conducteurs de petite section qu'aux conducteurs de forte section par retournement de la plaquette.

Les bornes peuvent avoir plus de deux vis ou goujons de serrage.

Si la longueur de la partie non filetée du corps de la vis ou du goujon est plus faible que l'épaisseur de la plaquette, la valeur minimale spécifiée pour la longueur de la partie filetée de la vis ou du goujon est comptée à partir de la plaquette, celle-ci étant en contact avec la tête de la vis pour les bornes avec vis, et en contact avec la partie fixe pour les bornes avec goujons.

Les dessins ne préjugent pas les détails non cotés.

The shape of the section of the conductor space may differ from that shown in the figures, provided a circle with a diameter equal to the minimum value specified for *D* can be inscribed.

The shape of the upper and lower faces of the saddle may be different to accommodate both small and large cross-sectional area conductors by reversing the saddle.

The terminals may have more than two clamping screws or studs.

If the non-threaded part of the shank of the screw or stud is shorter than the thickness of the saddle, the minimum value specified for the length of thread on the screw or stud is taken from the saddle, this being in contact with the head of the screw for terminals with screws, and in contact with the fixed part for terminals with studs.

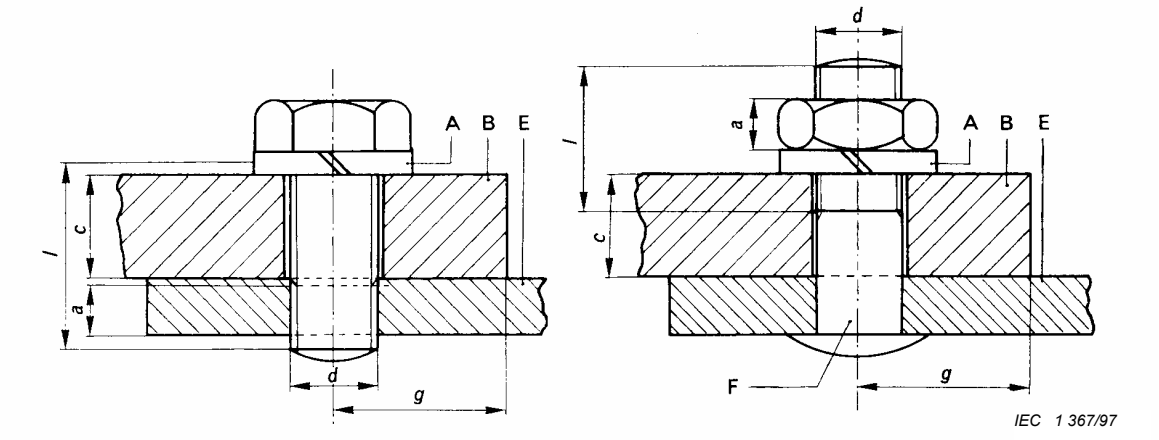
The sketches are not intended to govern design except as regards the dimensions shown.

FEUILLE DE NORMES 2-XIII

BORNES POUR COSSES ET BARRETTES

STANDARD SHEET 2-XIII

LUG TERMINALS



A Dispositif de blocage.
B Cosses ou barrette.
E Partie fixe.
F Goujon.

A Locking means.
B Cable lug or bar.
E Fixed part.
F Stud.

Numéro de la borne Terminal size	Diamètre nominal minimal de la partie filetée Minimum nominal thread diameter	Longueur minimale de la partie taraudée dans la partie fixe ou l'écrou Minimum length of thread in fixed part or nut	Longueur minimale de la partie filetée de la vis ou du goujon Minimum length of thread on screw or stud	Epaisseur maximale de la cosse ou de la barrette à recevoir Maximum thickness of lug or bar to be accommodated	Distance minimale entre l'axe et la vis ou du trou et le côté de la zone rectangulaire de serrage Minimum distance from centre of screw or hole to side of rectangular clamping area
	d	*a*	*l*	*c*	*g*
6 7	5,0 6,0	3,0 3,5	10 12	6,0 8,0	10 12

Dimensions en millimètres *Dimensions in millimetres*

Une rondelle élastique ou un dispositif de blocage aussi efficace doit être prévu pour ce type de borne.

Une zone de serrage ayant une surface de contact lisse doit être prévue autour de la vis ou du trou pour serrer les cosses ou les barrettes, cette zone étant suffisante pour recevoir la plaquette rectangulaire calibrée spécifiée en 11.7.

Si la longueur de la partie non filetée du corps de la vis ou du goujon est plus faible que l'épaisseur du dispositif de blocage, la valeur minimale spécifiée pour la longueur de la partie filetée de la vis ou du goujon doit être augmentée en conséquence.

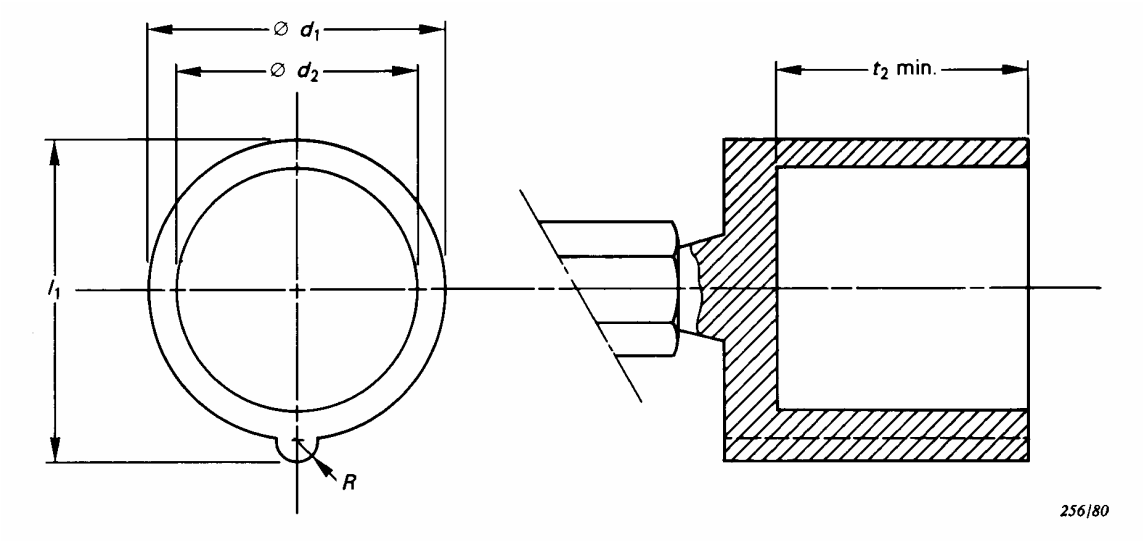
Les dessins ne préjugent pas les détails non côtés.

A spring washer or equally effective locking means shall be provided for this type of terminal.

A clamping area with a smooth contact surface shall be provided around the screw or hole for clamping the lugs or bars, this area being sufficient to accommodate the rectangular gauge strip specified in 11.7.

If the non-threaded part of the shank of the screw or stud is shorter than the thickness of the locking means, the minimum value specified for the length of thread on the screw or stud shall be increased accordingly.

The sketches are not intended to govern design except as regards the dimensions shown.



L'excentricité entre les centres de d_1 et d_2 ne doit pas être supérieure à 0,05 mm.

The eccentricity between the centres of d_1 and d_2 shall not exceed 0,05 mm.

Type	d_1 $^{0}_{-0,05}$	d_2 $^{+0,05}_{0}$	l_1 $^{0}_{-0,05}$	R $^{0}_{-0,025}$	t_2 min.
16/20 A – 2P + ⏚	44,3	36,0	47,5	3,3	38
16/20 A – 3P + ⏚	50,4	40,8	54,0	3,3	38
16/20 A – 3P + N + ⏚	57,3	46,4	61,3	3,3	38
32/30 A – 2P + ⏚, 3P + ⏚	58,6	47,0	64,6	3,3	48
32/30 A – 3P + N + ⏚	64,7	52,9	71,2	3,3	48
63/60 A	71,0	60,0	77,5	4,8	69
125/100 A	83,0	71,0	89,5	4,8	76

Dimensions en millimètres *Dimensions in millimetres*

(Voir 4.101)

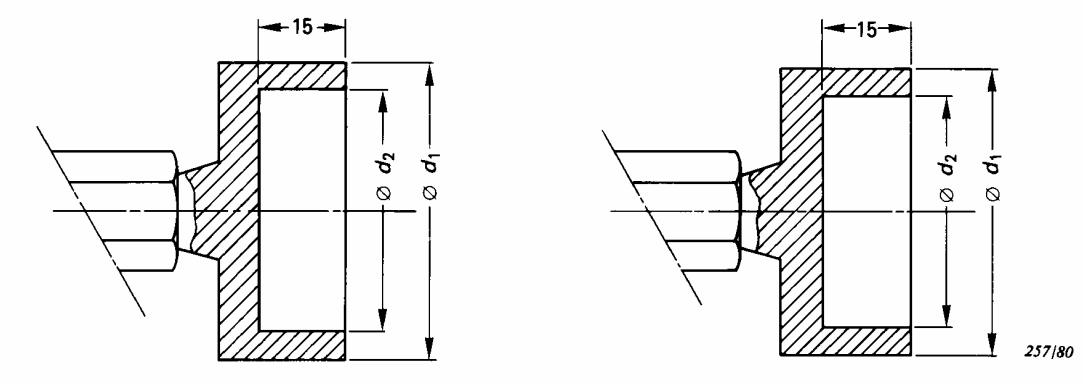
Il doit être possible d'introduire le calibre approprié dans le socle de prise de courant ou la prise mobile.

(See 4.101)

It shall be possible to insert the appropriate gauge into the socket-outlet or connector.

Figure 101 – Socles de prises de courant et prises mobiles 16/20 A, 32/30 A, 63/60 A et 125/100 A de tension nominale d'emploi dépassant 50 V – calibres «ENTRE» pour vérifier les dimensions d_1, d_2, l_1

16/20 A, 32/30 A, 63/60 A and 125/100 A socket-outlets and connectors having rated operating voltages exceeding 50 V – "GO" gauges for checking dimensions d_1, d_2, l_1



CALIBRE A POUR VÉRIFIER Ø d_1

GAUGE A FOR CHECKING Ø d_1

CALIBRE B POUR VÉRIFIER Ø d_2

GAUGE B FOR CHECKING Ø d_2

Type	Calibre A / Gauge A		Calibre B / Gauge B	
	d_1 +0,05 0	d_2 +0,5 0	d_1 0 –0,5	d_2 0 –0,05
16/20 A – 2P + ⏚	44,73	37,0	43,3	34,47
16/20 A – 3P + ⏚	50,93	41,8	49,4	39,27
16/20 A – 3P + N + ⏚	57,93	47,4	56,3	44,87
32/30 A – 2P + ⏚, 3P + ⏚	59,23	48,0	57,6	45,47
32/30 A – 3P + N + ⏚	65,33	53,9	63,7	51,37
63/60 A	71,83	61,0	70,0	58,47
125/100 A	83,83	72,0	82,0	69,47

Dimensions en millimètres *Dimensions in millimetres*

(Voir 4.101)

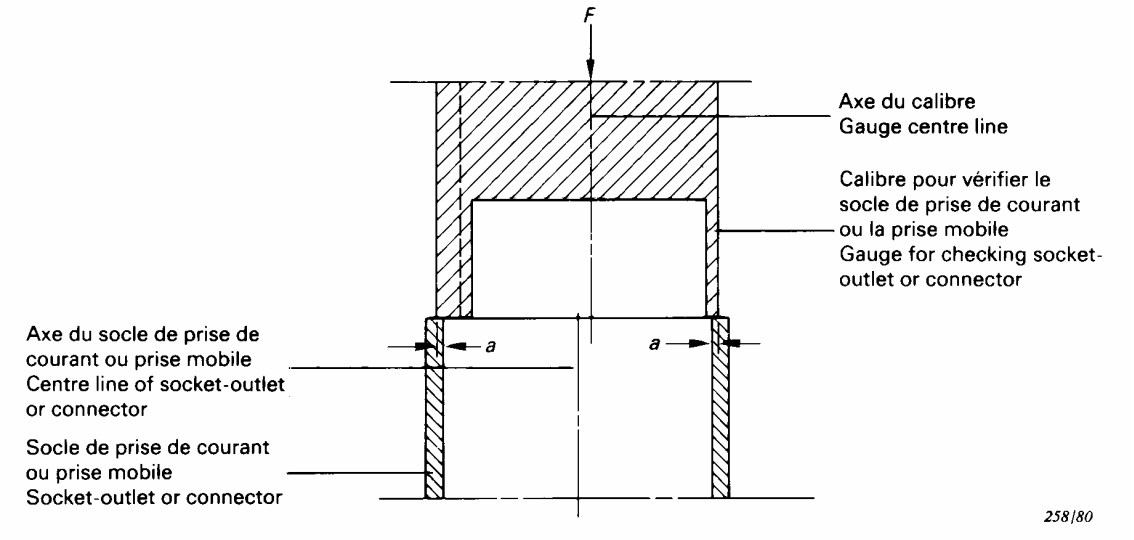
Il ne doit pas être possible d'introduire les calibres A et B dans le socle de prise de courant ou la prise mobile.

(See 4.101)

It shall not be possible to insert the gauges A and B into the socket-outlet or connector.

Figure 102 – Socles de prises de courant et prises mobiles 16/20 A, 32/30 A, 63/60 A et 125/100 A de tension nominale d'emploi dépassant 50 V – Calibres «N'ENTRE PAS» pour vérifier les dimensions d_1, d_2

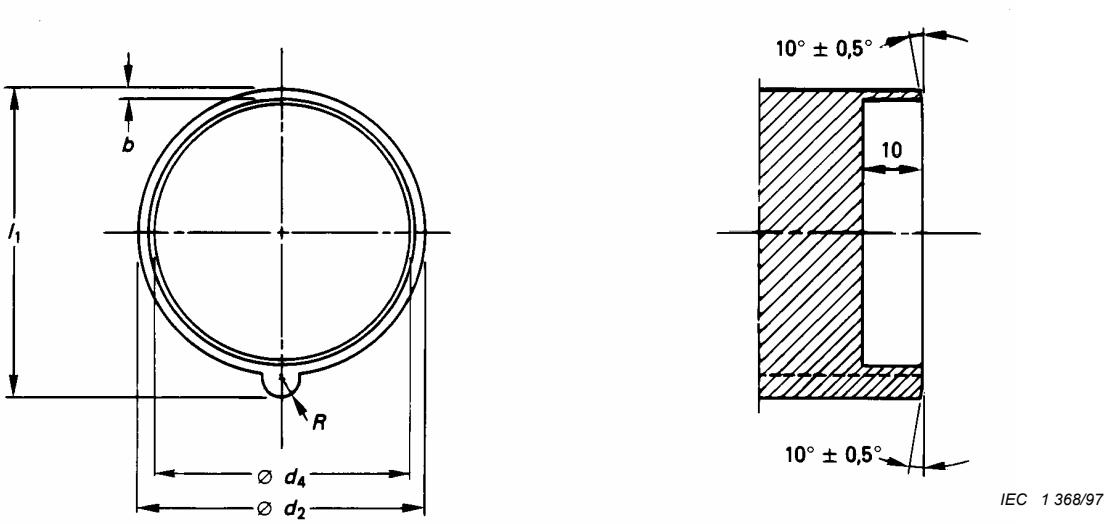
16/20 A, 32/30 A, 63/60 A and 125/100 A socket-outlets and connectors having rated operating voltages exceeding 50 V – "NOT GO" gauges for checking dimensions d_1, d_2



(Voir 4.101) *(See 4.101)*

Figure 103 – Dispositif d'essai utilisant un calibre «N'ENTRE PAS» pour vérifier les socles de prises de courant et prises mobiles 16/20 A, 32/30 A, 63/60 A et 125/100 A de tension nominale d'emploi dépassant 50 V

Arrangement for test using "NOT GO" gauge for checking 16/20 A, 32/30 A, 63/60 A and 125/100 A socket-outlets and connectors having rated operating voltages exceeding 50 V



(Voir 4.101)

L'excentricité entre les centres de d_2 et d_4 ne doit pas être supérieure à 0,05 mm.

(See 4.101)

The eccentricity between the centres of d_2 and d_4 shall not exceed 0,05 mm.

Figure 104 – Calibres pour vérifier les socles de prises de courant et prises mobiles de 16/20 A, 32/30 A, 63/60 A et 125/100 A de tension nominale dépassant 50 V

Gauges for checking socket-outlets or connectors of 16/20 A, 32/30 A, 63/60 A and 125/100 A having rated operating voltages exceeding 50 V

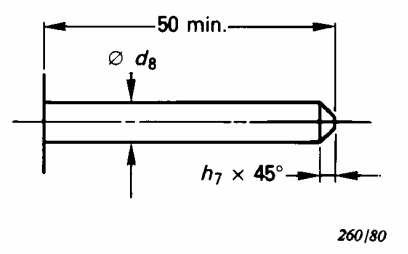


Figure 105 – Calibre de vérification des alvéoles de phase

Gauge for checking phase holes

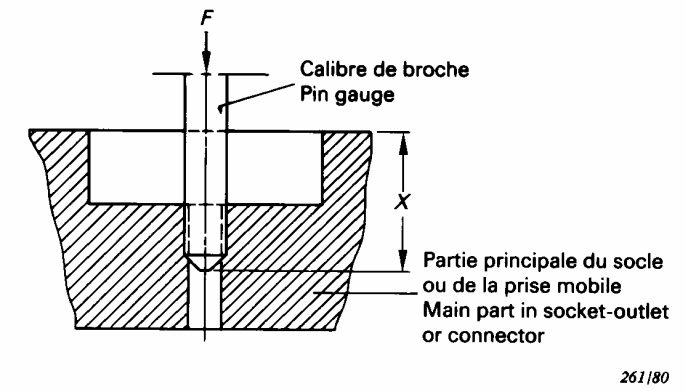


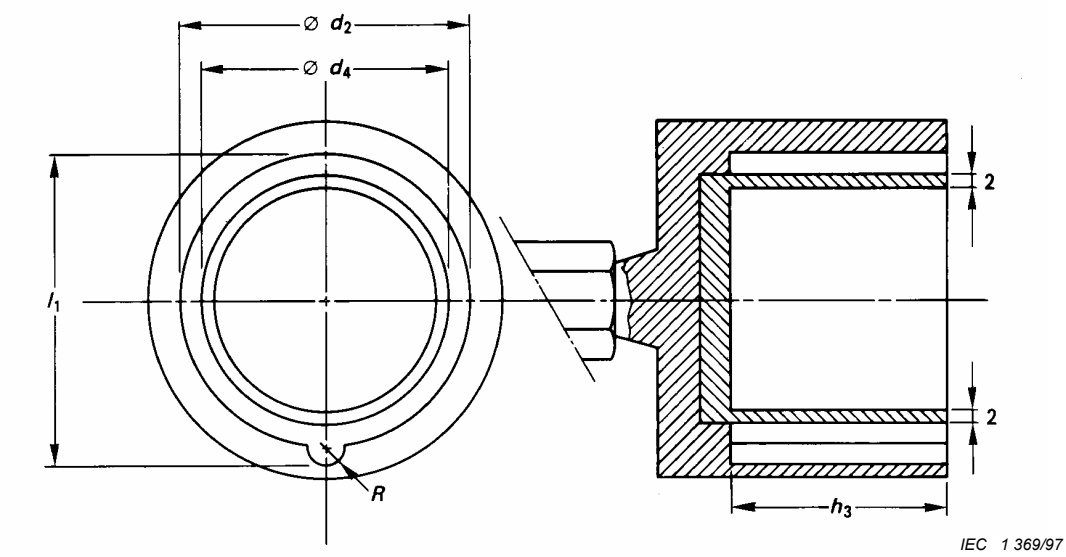
Figure 106 – Essai des alvéoles de phase

Test of phase hole

Dimensions des figures 104 et 105 *Dimensions for figures 104 and 105*

Type	Calibre / Gauge						
	d_2 $^{0}_{-0,05}$	d_4 $^{+0,1}_{0}$	d_8 $^{0}_{-0,03}$	h_7 $^{+0,1}_{0}$	l_1 $^{0}_{-0,05}$	b ±0,1	R $^{0}_{-0,1}$
16/20 A – 2P + ⏚	42,9	39,4	6,91	2,2	46,1	1,4	2,8
16/20 A – 3P + ⏚	48,9	44,3	6,91	2,2	52,4	1,5	2,8
16/20 A – 3P + N + ⏚	55,5	50,3	6,91	2,2	59,5	1,6	2,8
32/30 A – 2P + ⏚, 3P + ⏚	56,5	51,3	7,91	2,5	62,6	2,5	2,8
32/30 A – 3P + N + ⏚	62,6	57,2	7,91	2,5	69,2	2,7	2,8
63/60 A	68,7	63,5	9,89	3	74,9	2,45	3,8
125/100 A	80,7	75,0	11,89	4	86,9	2,45	3,8

Dimensions en millimètres *Dimensions in millimetres*



L'excentricité entre les centres de d_2 et d_4 ne doit pas être supérieure à 0,05 mm.

The eccentricity between the centres of d_2 and d_4 shall not exceed 0,05 mm.

Type	Gauge / Calibre					
	d_2 +0,05 0	d_4 0 –0,05	h_3	l_1 +0,05 0		R +0,25 0
				1)	2)	
16/20 A – 2P + ⏚	43,5	37,9	37,05	46,5	47,0	3,2
16/20 A – 3P + ⏚	49,5	42,8	37,05	52,9	53,6	3,2
16/20 A – 3P + N + ⏚	56,1	48,8	37,05	60,1	61,0	3,2
32/30 A – 2P+ ⏚, 3P + ⏚	57,3	49,7	46,05	63,2	63,2	3,2
32/30 A – 3P + N + ⏚	63,4	55,6	46,05	69,9	69,9	3,2
63/60 A	69,5	61,5	67,05	75,5		4,2
125/100 A	81,5	72,5	75,55	87,5		4,2

Dimensions en millimètres *Dimensions in millimetres*

(Voir 4.101) *(See 4.101)*

1) Pour les appareils ayant des enveloppes métalliques.

2) Pour les appareils ayant des enveloppes en matériau isolant.

1) For accessories with metal enclosures.

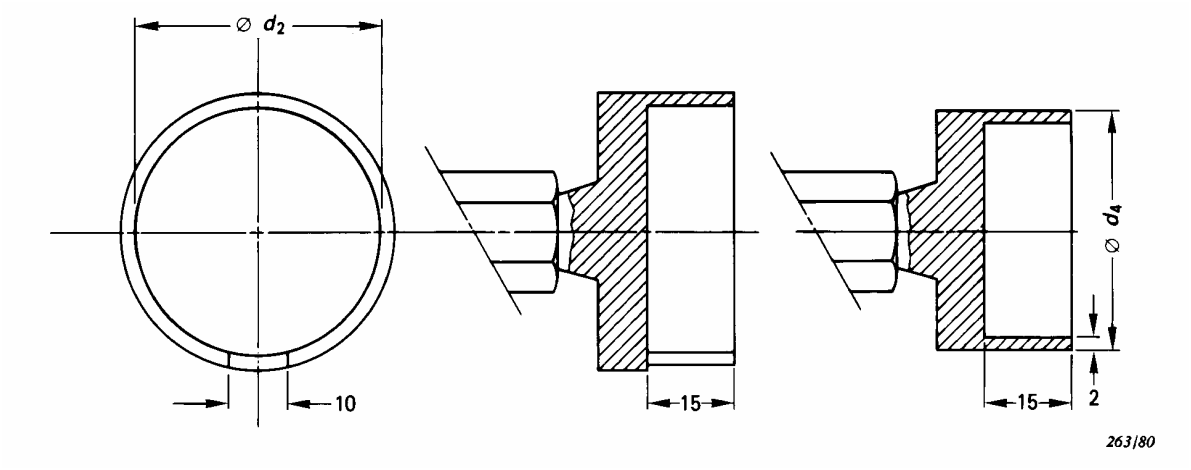
2) For accessories with enclosures of insulating material.

Il doit être possible d'introduire le calibre approprié dans la fiche ou le socle de connecteur.

It shall be possible to insert the appropriate gauge into the plug or appliance inlet.

Figure 107 – Fiches et socles de connecteurs 16/20 A, 32/30 A, 63/60 A et 125/100 A de tension nominale d'emploi dépassant 50 V – Calibre «ENTRE» pour vérifier les dimensions d_2, d_4, l_1

16/20 A, 32/30 A, 63/60 A and 125/100 A plugs and appliance inlets having rated operating voltages exceeding 50 V "GO" gauges for checking dimensions d_2, d_4, l_1



CALIBRE A POUR VÉRIFIER Ø d_2

GAUGE A FOR CHECKING Ø d_2

CALIBRE B POUR VÉRIFIER Ø d_4

GAUGE B FOR CHECKING Ø d_4

Type	Calibre A / Gauge A	Calibre B / Gauge B	
	d_2 $^{0}_{-0,05}$	d_4 $^{+0,05}_{0}$	
		1)	2)
16/20 A – 2P + ⏚	42,87	39,83	39,43
16/20 A – 3P + ⏚	48,87	44,73	44,33
16/20 A – 3P + N + ⏚	55,47	50,73	50,33
32/30 A – 2P + ⏚, 3P + ⏚	56,47	51,63	51,33
32/30 A – 3P + N + ⏚	62,57	57,53	57,23
63/60 A	68,67	63,53	
125/100 A	80,67	75,03	

Dimensions en millimètres

Dimensions in millimetres

(Voir 4.101)

(See 4.101)

1) Pour les appareils ayant des enveloppes métalliques.

2) Pour les appareils ayant des enveloppes en matériau isolant.

Il ne doit pas être possible d'introduire les calibres A et B dans la fiche ou le socle de connecteur.

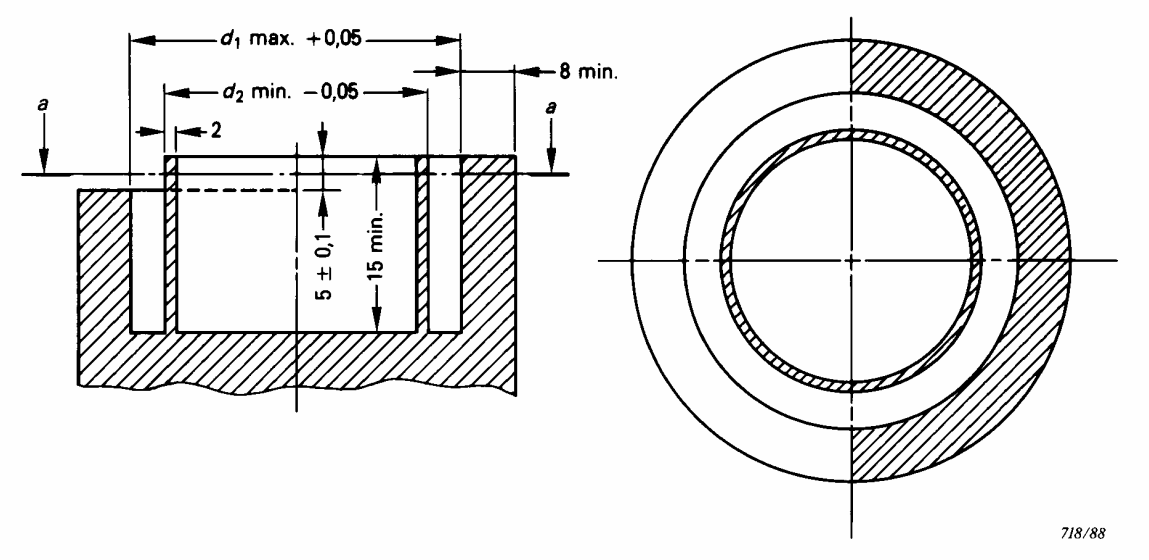
1) For accessories with metal enclosures.

2) For accessories with enclosures of insulating material.

It shall not be possible to insert the gauges A and B into the plug or appliance inlet.

Figure 108 – Fiches et socles de connecteurs 16/20 A, 32/30 A, 63/60 A et 125/100 A de tension nominale d'emploi dépassant 50 V – Calibre «N'ENTRE PAS» pour vérifier les dimensions d_2, d_4

16/20 A, 32/30 A, 63/60 A and 125/100 A plugs and appliance inlets having rated operating voltages exceeding 50 V – "NOT-GO" gauges for checking dimensions d_2, d_4



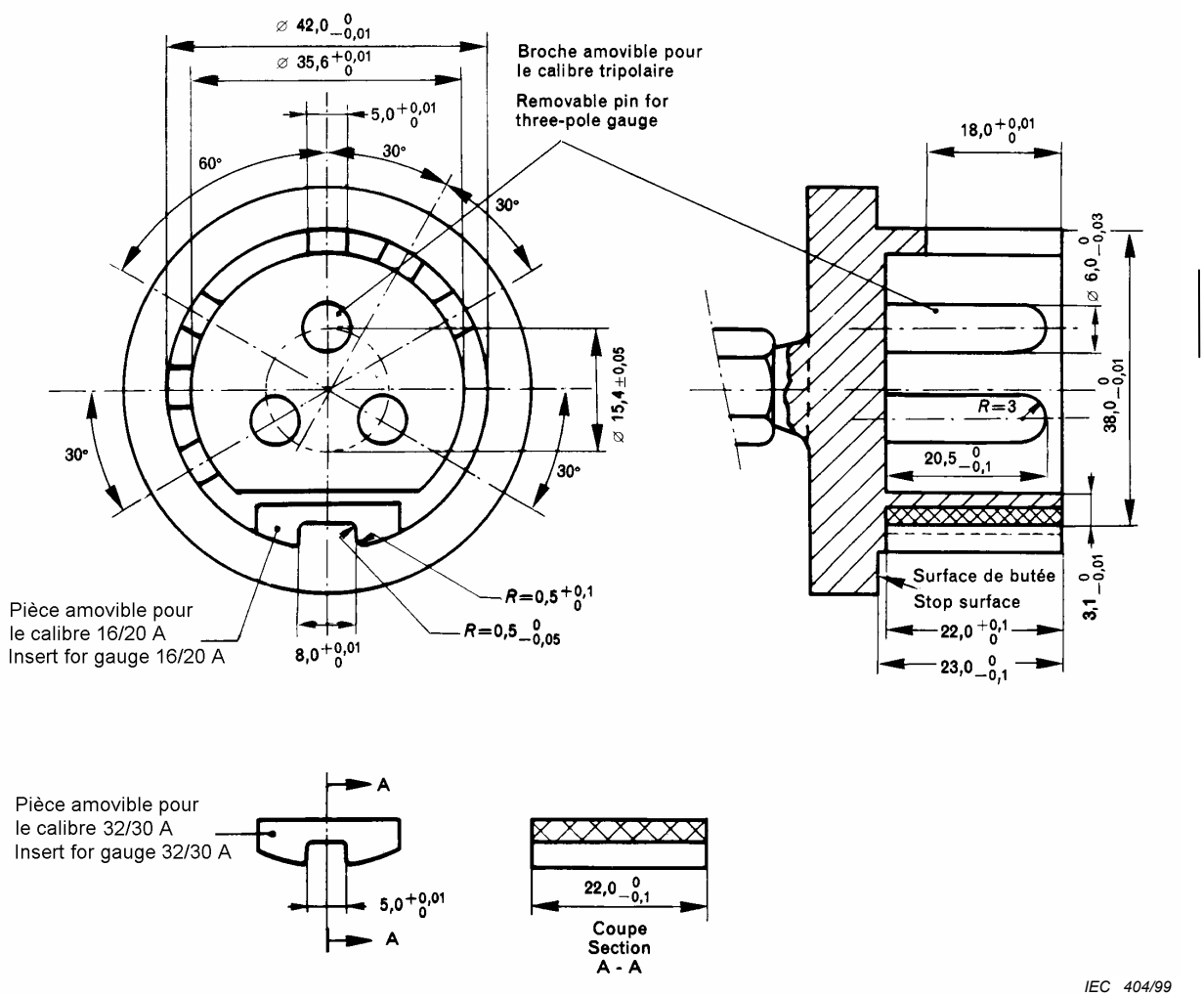
Dimensions en millimètres Dimensions in millimetres

Les dimensions d_1 et d_2 sont celles des socles et prises mobiles correspondants.

The dimensions d_1 and d_2 are those of the corresponding socket-outlets or connectors.

Figure 109 – Calibre «N'ENTRE PAS» pour vérifier les fiches et socles de connecteurs de 16/20 A, 32/30 A, 63/60 A et 125/100 A de tension nominale d'emploi dépassant 50 V

"NOT-GO" gauges for checking 16/20 A, 32/30 A, 63/60 A and 125/100 A plugs and appliance inlets having rated operating voltages exceeding 50 V



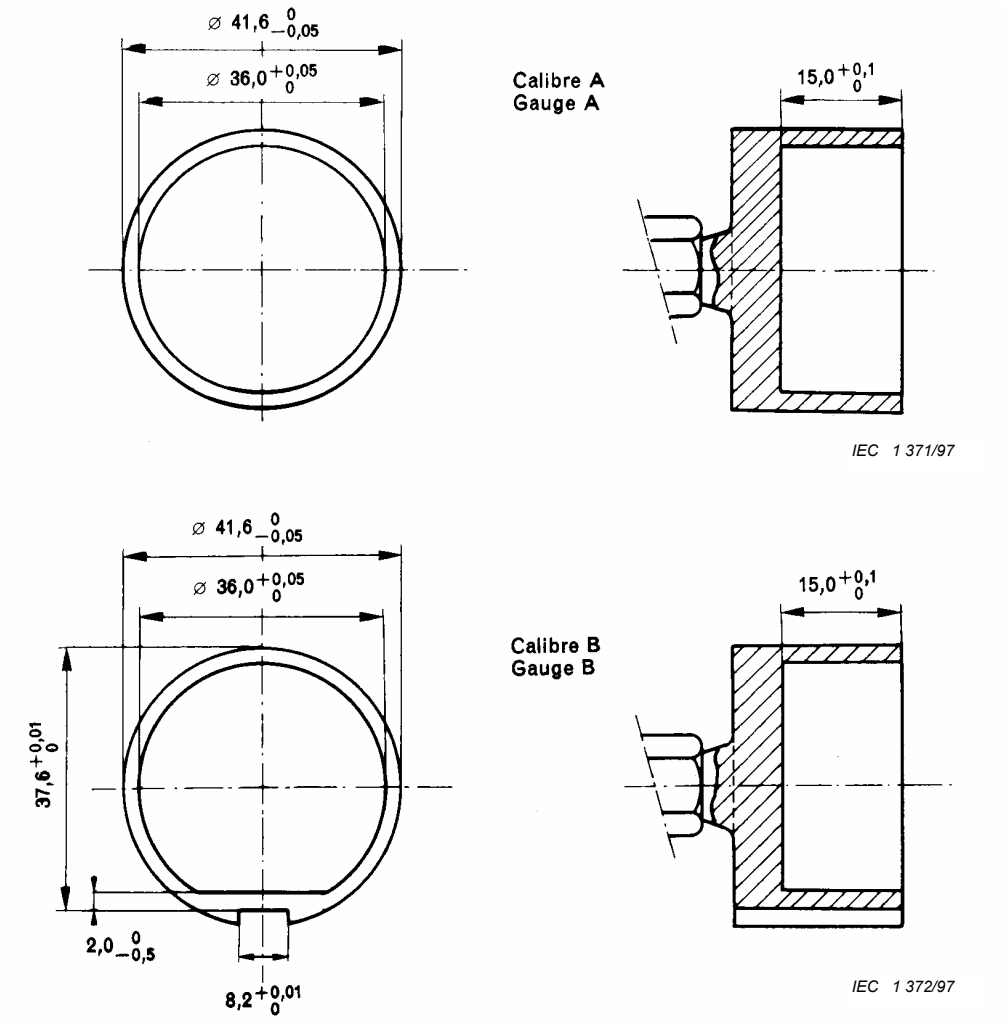
Dimensions en millimètres Dimensions in millimetres

Il doit être possible d'introduire le calibre approprié dans le socle de prise de courant ou la prise mobile jusqu'à ce que la surface de butée du calibre soit en contact avec la face frontale de la jupe du socle ou de la prise mobile.

It shall be possible to insert the appropriate gauge into the socket-outlet or connector so that the stop surface of the gauge comes into contact with the front surface of the shroud of the socket-outlet or connector.

Figure 110 – Socles et prises de courant et prises mobiles 16/20 A et 32/30 A de tension nominale d'emploi ne dépassant pas 50 V – Calibres pour vérifier l'interchangeabilité

16/20 A and 32/30 A socket-outlets and connectors having rated operating voltages not exceeding 50 V – Gauges for checking interchangeability



Dimensions en millimètres Dimensions in millimetres

Il ne doit pas être possible d'introduire le calibre A dans le socle de prise de courant ou la prise mobile.

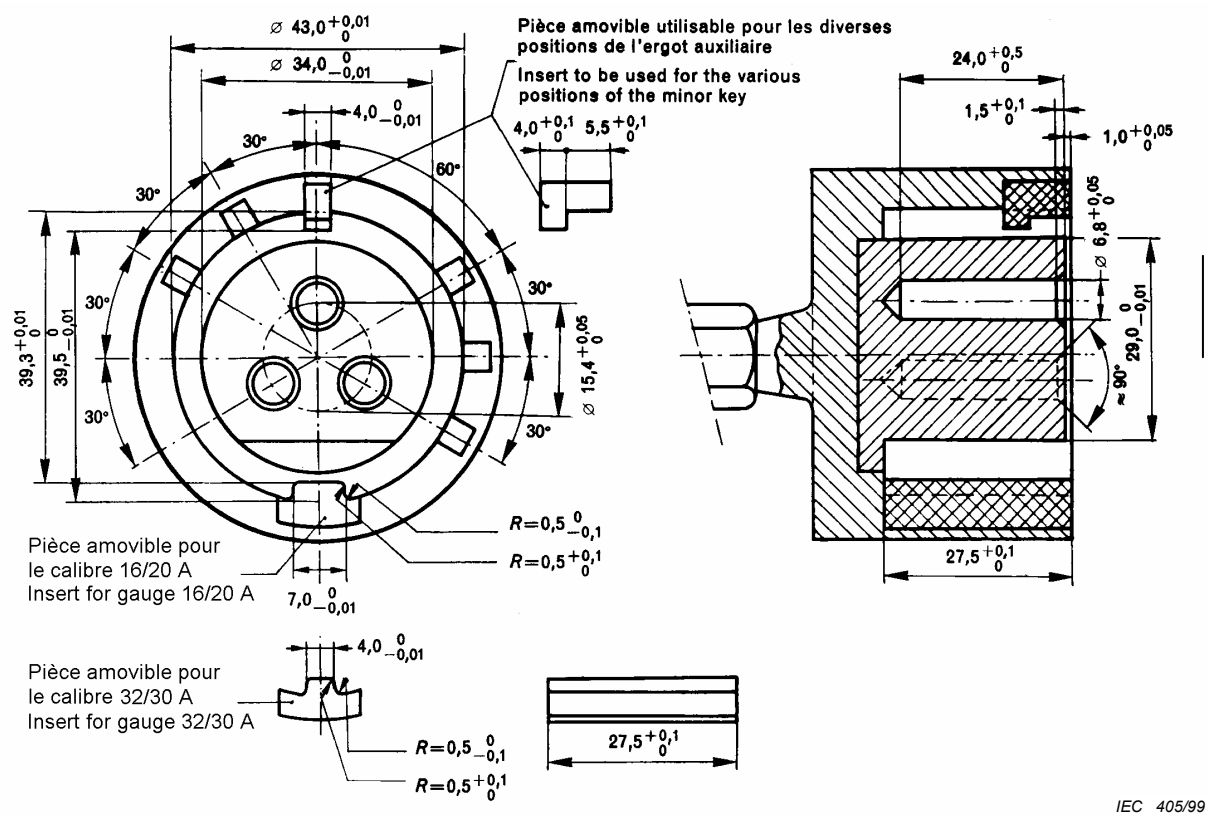
Il ne doit pas être possible d'introduire le calibre B dans la position correcte dans la jupe du socle de prise de courant ou de la prise mobile.

It shall not be possible to insert the gauge A into the socket-outlet or connector.

It shall not be possible to insert the gauge B in the correct position into the shroud of the socket-outlet or connector.

Figure 111 – Socles et prises de courant et prises mobiles 16/20 A et 32/30 A de tension nominale d'emploi ne dépassant pas 50 V – Calibres pour vérifier la rigidité des enveloppes en matière thermoplastique dans des conditions humides et chaudes

16/20 A and 32/30 A socket-outlets and connectors having rated operating voltages not exceeding 50 V – Gauges for checking rigidity of enclosures of thermoplastic material under humid and warm conditions



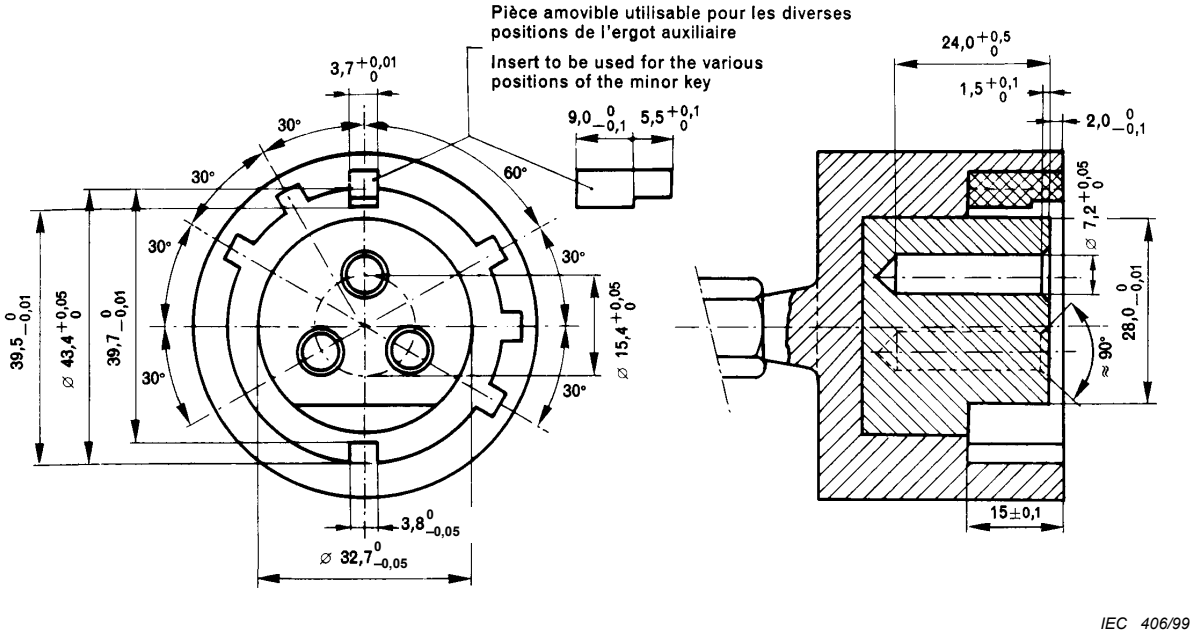
Dimensions en millimètres Dimensions in millimetres

Il doit être possible d'introduire le calibre approprié sans forcer, dans la fiche ou le socle de connecteur jusqu'à ce que la face frontale du calibre soit en contact avec la surface de butée de la fiche ou du socle de connecteur.

It shall be possible to insert the appropriate gauge, without undue force, into the plug or appliance inlet so that the front surface of the gauge comes into contact with the stop surface of the plug or appliance inlet.

Figure 112 – Fiches et socles de connecteurs 16/20 A et 32/30 A de tension nominale d'emploi ne dépassant pas 50 V – Calibres pour vérifier l'interchangeabilité

16/20 A and 32/30 A plugs and appliance inlets having rated operating voltages not exceeding 50 V – Gauges for checking interchangeability



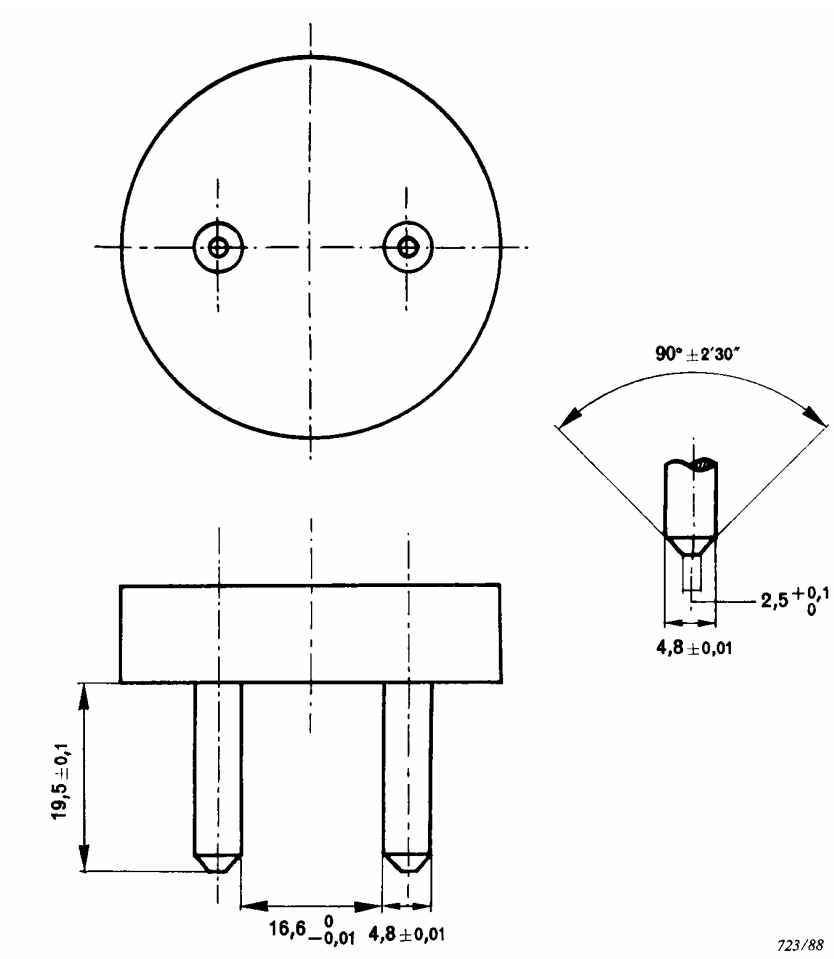
Dimensions en millimètres Dimensions in millimetres

Pour toutes les positions de la pièce amovible, il ne doit pas être possible de faire passer le calibre dans la position correcte par-dessus la jupe de la fiche ou du socle de connecteur.

In any position of the insert, it shall not be possible to pass the gauge in the correct position over the shroud of the plug or appliance inlet.

Figure 113 – Fiches et socles de connecteurs 16/20 A et 32/30 A de tension nominale d'emploi ne dépassant pas 50 V – Calibres pour vérifier la rigidité des enveloppes en matière thermoplastique dans des conditions humides et chaudes

16/20 A and 32/30 A plugs and appliance inlets having rated operating voltages not exceeding 50 V – Gauges for checking rigidity of enclosures of thermoplastic material under humid and warm conditions



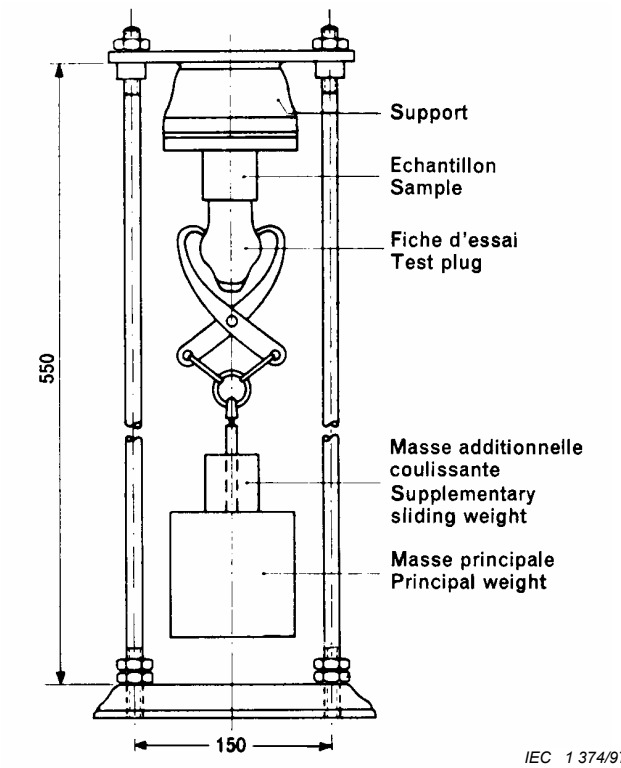
Dimensions en millimètres Dimensions in millimetres

Il ne doit pas être possible de toucher une alvéole de phase du socle de prise de courant ou de la prise mobile avec une seule broche du calibre.

It shall not be possible to touch a phase contact tube of the socket-outlet or connector with one gauge pin only.

Figure 114 – Socles de prises de courant et prises mobiles ayant des enveloppes en matière élastique ou thermoplastique – Calibres pour vérifier l'impossibilité de l'introduction d'une seule broche des fiches bipolaires 10/16 A 250 V

Socket-outlets and connectors with enclosures of resilient or thermoplastic material – Gauge for checking impossibility of single-pole insertion of 10/16 A 250 V two-pole plugs



Dimensions en millimètres Dimensions in millimetres

Figure 115 – Appareil pour la vérification de la force de séparation
Apparatus for checking the withdrawal force

Annex AA
(informative)

List of the clause numbers that require re-testing

A.1 To comply with fourth edition of this standard, accessories previously inspected and tested according to second edition or third edition require re-examination and/or re-testing for the following clauses:

NOTE Differences between the second and the third edition are editorial only.

6.1.2
7.2
7.7
Table 104

A.2 To comply with Amendment 1 of this standard, accessories previously inspected and tested according to the fourth edition may require re-examination and/or re-testing for the following clauses:

5.101
6.1.2
Standard sheet 2-IIIa
Standard sheet 2-IVa

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